South African Medical Journal : Suid-Afrikaanse Tydskrif vir Geneeskunde

Cape Town, 13 August 1960 Volume 34 No. 33 Deel 34 Kaapstad, 13 Augustus 1960

THE COMPLAINTS OF MOTHERS AND THEIR DAUGHTERS

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Many diseases manifest a familial distribution as a result of the common exposure of family members to genetic and other influences. It is of interest to know whether, in families drawn at random, the members show a significant correspondence in their complaints, i.e. in their symptoms of ill-health.

In the course of a study of the health implications of inter-generational culture-conflict within the family, carried out at the Institute of Family and Community Health, Durban, in 1958 - 59, health questionnaires were put to a number of Indian adolescent girls and to their mothers. On the basis of the responses to these questionnaires, evidence was sought of correspondence between the complaints of the girls and those of their respective mothers.

SUBJECTS AND METHOD

The sample comprised (*a*) all the unmarried Hindu girls who were aged 16 or 17 and living at home with their mothers in a defined area of a suburb of Durban at the time of the study, and (*b*) their mothers. There were 76 girls in the sample, of whom 60 (79%) were interviewed. In 11 cases either the girl or her mother was reluctant to be interviewed; in 2 it was not possible to arrange to meet both the girl and her mother on the same day; and 3 girls were excluded for other reasons. As there were 2 pairs of sisters in the sample, the number of mothers interviewed was 58. The ages of the mothers ranged from 29 to 56 years. There were 8 subjects (5 mothers and 3 girls) engaged in gainful work away from home; 6 of the girls were still at school.

The neighbourhood in which the study was performed is a poor 'slum' area, occupied mainly by Indian families. Housing, sanitation and diet are of a poor standard, and there is a considerable degree of material insecurity. The population carries a heavy load of disease, in spite of a number of important health-promotive factors, notably a high level of family and community solidarity and cultural continuity. Infections and infestations, malnutrition, and emotional ill-health, are widespread. Aspects of the community's health and way of life have been described more fully elsewhere.[1,2]

The instrument used was the Cornell Medical Index, a health questionnaire which has been extensively validated as a reliable and useful basis for the diagnosis of disease.[3,4] It contains 195 simple Yes/No questions. In each case, a 'Yes' response indicates that the patient claims the presence, currently or in some instances previously, of the stated symptom or disorder. Both the specific replies and the total number of 'Yes' responses provide useful clues to the patient's disorders and their severity. The majority of questions relate to 'complaints', or symptoms not specifically related to particular diseases, and a few to specific illnesses, habits which may be associated with ill-health, or the presence of illness in other family members. Of the 3,306 separate 'Yes' responses which the questionnaires elicited, only 123 (3·7%) related to a history of specific illnesses, 90 (2·7%) to habits, and 128 (3·9%) to illness in other family members. By and large, therefore, the positive responses were indicative of the subjects' symptoms, or complaints.

The questionnaire is divided into sections which deal separately with the respiratory, cardiovascular, and other body systems, fatigability, the frequency of illness, miscellaneous diseases, and mood and feeling patterns (inadequacy, depression, anxiety, sensitivity, anger and tension).

Although the Cornell Medical Index has certain drawbacks when used in this community, these are not serious, and clinical experience at the Institute of Family and Community Health has proved it to be a generally reliable and useful means of collecting information about patients' complaints.

The questionnaire was administered in the subject's home, by a family nurse with considerable experience in its use; she was assisted, when necessary, by an interpreter. In a few cases the questionnaire was filled in by the subject herself. Either method tends to produce the same number of 'Yes' responses.[4] The questionnaires were administered in private. The girl and her mother had no opportunity to compare notes between their respective interviews.

In testing for an association between mothers' responses and those of their own daughters, the chi-square test was used, with Yates's correction. In order to assess the degree of correlation between mothers' scores and their daughters', Spearman's coefficient of rank correlation (R) was calculated, allowance being made for tied ranks.[5] This coefficient expressed the correlation between the mother's rank (i.e. the ordinal position of her score, in relation to the scores of other mothers), and her daughter's rank (in relation to other girls).

RESULTS

There was considerable evidence of a relationship between the responses of the girls and those of their own mothers, with regard both to their number and their nature.

If a mother had a low total score, there was a significant tendency for her daughter, too, to have a low score; whereas if a mother had a high score, her daughter tended to have a high score (Table I). The coefficient of correlation between mothers' and daughters' scores was $+\cdot41$, indicating a moderate positive correlation ($P<\cdot01$).

Examination of the scores for the separate sections of the questionnaire revealed similar positive correlations between mothers' and daughters' responses in 5 sections, namely those dealing with the respiratory, nervous and genito-urinary systems, anxiety and anger. These will be considered separately below. In respect of a further 3 sections, namely

TABLE I. ASSOCIATION BETWEEN THE NUMBER OF 'YES' RESPONSES TO THE CORNELL MEDICAL INDEX BY DAUGHTERS, AND BY THEIR OWN MOTHERS

		No. of daughters giving the specified no. of 'Yes' responses	
		Under 18 'Yes' responses	18 or more 'Yes' responses
No. of mothers giving the specified no. of 'Yes' responses	Under 25 'Yes' responses	20	9
	25 or more 'Yes' responses	10	21

Chi-square = 6·67; $P < \cdot 01$

those concerned with the skin, fatigability, and inadequacy, there was a positive association which fell just short of significance (P = between ·05 and ·10). No sections evidenced a negative association between mothers' and daughters' scores.

Respiratory system. There were 19 daughters who made no 'Yes' responses to the 18 questions in this section; of their mothers, 12 (63%) likewise made no 'Yes' responses. There were 41 daughters who made at least one positive response; of their mothers, there were only 8 (20%) who made no 'Yes' responses. This association was significant ($P < \cdot 01$). The coefficient of rank correlation between mothers' and daughters' scores, however, was only +·19, which was not significant ($P < \cdot 10$). It thus appeared that mothers and daughters tended to show a parallelism with regard to the presence, but not the number, of respiratory complaints. Of the 246 'Yes' responses to the questions in this section, 59% related to colds, a nasal discharge, or phlegm in the throat.

Nervous system. The coefficient of rank correlation between mothers' and daughters' scores was +·35 ($P < \cdot 01$), indicating a moderate relationship. Of the 226 'Yes' responses, 54% related to frequent headaches, or pressure in the head, and 24% to dizziness, faintness, or fainting.

Genito-urinary system. The coefficient of correlation between mothers' and daughters' scores was +·43 ($P < \cdot 001$), indicating a moderate relationship. Of the 256 'Yes' responses, 63% related to pain, weakness, or other disturbances at the time of menstruation, and 18% to frequency of micturition.

Anxiety. The coefficient of correlation between mothers' and daughters' scores was +·58 ($P < \cdot 001$), indicating a substantial relationship. The 9 questions in this section, however, included 4 which related to anxiety in other family members, not in the respondent herself. A further question in this section received no 'Yes' responses. The scores were accordingly revised, by omitting the responses to these 5 questions. Between these revised scores too there was a significant correlation (R = +·41; $P < \cdot 01$). The 4 residual questions were:

'Does worrying continually get you down?' (43% of the 'Yes' responses).

'Does every little thing get on your nerves and wear you out?' (41%).

'Are you considered a nervous person?' (14%).

'Did you ever have a nervous breakdown?' (2%).

Anger. The coefficient of correlation between mothers' and daughters' scores was +·28 ($P < \cdot 05$), indicating a weak association. The questions in this section relate mainly to various manifestations of irritability.

Individual questions. In addition to this parallelism in respect of the total score and the scores for these 5 sections, there was a significant correspondence between the replies of daughters and their mothers to a number of specific questions. These questions, and the responses to them, are listed in Table II.

TABLE II. RESPONSES TO SPECIFIED QUESTIONS BY DAUGHTERS AND THEIR OWN MOTHERS

Daughters' response:	'Yes'		'No'		P*
Mothers' response:	'Yes'	'No'	'Yes'	'No'	
Question:					
Have your menstrual periods usually been painful?	14	11	8	27	<·02
Do you often have spells of severe dizziness?	7	1	13	39	<·01
Do you often get spells of complete exhaustion or fatigue? and/or does working tire you out completely?	13	5	17	25	<·05
Do you sweat a great deal even in cold weather?	3	4	2	51	<·05
Must you do things very slowly in order to do them without mistakes?	19	15	6	20	<·05

* Estimated by the chi-square test where applicable, and in other instances by the use of the tests for fourfold tables provided by Armsen.[6]

DISCUSSION

There is thus evidence, in these subjects, of a moderate degree of correspondence between the responses of mothers and those of their own daughters, indicating a parallelism both in the number and in the nature of their complaints.

Three interrelated factors may explain this parallelism. First, mother and daughter have a similar family setting. Both may be exposed to such adverse environmental influences as overcrowding, a poor diet, contact with children who are subject to respiratory ailments, the unemployment or alcoholism of a husband and father, or the presence in the home of an unpleasant relative. Secondly, both mother and daughter comprise part of the social environment of the other, and both are subjected to the effects of their own interaction. Not only, for example, may their mutual harmony or conflict bring similar influences to bear upon both, but anxiety or infections may be transmitted from one to the other. Thirdly, mother and daughter may tend to function similarly, as a result of hereditary or other factors. There may, for example, be a genetic predisposition to a disorder, or possibly an inherited temperamental tendency to react to stimuli in a particular way. In addition a girl may tend, as the result of learning processes, to manifest similar reactions to her

mother's. To a degree, every family has its own sub-culture, with its own familial pattern of learned behaviour.

It is thus likely that a mother and her daughter will tend to coincide, to an extent, both in their exposure to environmental influences, and in their perception of such influences and their methods of reacting to them. A tendency has been shown for the members of a family to give similar responses to psychological projective tests, and to have similar personality problems.[7] The sharing of experiences and of patterns of reaction may produce a shared proneness both to have complaints, generally or of a particular kind, and to voice them.

The findings which have been presented should not be construed as indicating merely that if a mother is 'fond of complaining', her daughter too is likely to be 'fond of complaining'. This may be so. But the implications go beyond this. There is an established relationship between responses to the Cornell Medical Index, and health. In particular, it has been shown that the number of 'Yes' responses bears a direct relationship to the extent of emotional disturbance.[3] It can thus be inferred that there is an association between the extent of the emotional disturbance manifested by the mothers and daughters studied. This conclusion is in accord with the known tendency for mental ill-health to occur in more than one member of the same family.[8,9]

It is interesting to speculate on whether the parallelism found between the complaints of mothers and daughters is largely a reflection of this parallelism in their emotional health. This is not unlikely, for most of the complaints evidencing a mother-daughter correspondence bear an obvious relationship to emotional factors. Even the occurrence of respiratory ailments may be related to emotional health.[10-12]

To an extent, this possibility could be tested by seeing whether a relationship existed between the score for the 4 questions relating to the subject's anxiety, and the other responses manifesting a mother-daughter correspondence. When this was done, considerable evidence of such an association was found. Persons with more 'anxiety' responses tended to have significantly more responses to the questionnaire as a whole, the coefficients of correlation being $+\cdot58$ for the mothers, and $+\cdot49$ for the daughters ($P<\cdot001$ in each instance). There was a similar association, among the mothers, the girls, or both, with the scores for 3 of the 4 sections showing a mother-daughter parallelism. Among the girls, the coefficient of correlation between the anxiety score and the nervous-system score was $+\cdot40$ ($P<\cdot01$); among the mothers, though this coefficient was not significant, a chi-square test indicated a relationship between the presence of positive responses relating to anxiety and the nervous system ($P<\cdot05$). The correlation with genito-urinary responses was significant among the girls ($R = +\cdot45$; $P<\cdot001$), and that with anger responses in both groups ($R = +\cdot56$ for the mothers, and $+\cdot57$ for the girls; $P<\cdot001$ in each instance). There was no significant correlation with respiratory-system responses. Of the specific questions manifesting a mother-daughter correspondence which are listed in Table II, the responses to 3 were significantly related to the anxiety score. Among the girls, if the anxiety score was nil, painful menstrual periods and fatigability were less commonly reported ($P<\cdot05$ in each instance). Among the mothers, if the anxiety score was nil, both fatigability and mistakes on hurrying were less commonly reported ($P<\cdot001$ and $<\cdot02$ respectively).

Though these associations with anxiety may result, in part, from the fact that the presence of symptoms may itself induce anxiety, they support, in general, the thesis that both the number and the types of complaints are to a large extent expressions of the subject's emotional health. It is probable that the parallelism found between the complaints of these mothers and their daughters is largely an expression of a parallelism in their state of emotional health.

The findings which have been presented have two important practical implications:

(*a*) The fact that common membership of a family may result in a shared pattern of complaints serves to emphasize the important impact of the family-life situation on health. An investigation of the patient's current and past family-life situation constitutes an important part of the examination of a patient.

(*b*) To the family doctor who conceives of his role as including a responsibility for the health care, not only of the patient who is currently consulting him, but also of the other members of the patient's family, it is important that he should be aware of the possibility that his patient's complaints and state of health may have their counterparts in other family members. The complaints of one member, like other of his findings, may clearly point a need for the examination of other members.

SUMMARY

A health questionnaire (the Cornell Medical Index) was administered to 60 Durban Hindu girls aged 16 or 17, and to their mothers.

There was a moderate correspondence between the responses of the girls and those of their own mothers, indicating a parallelism both in the number and in the nature of their complaints.

The reasons for this parallelism are considered. It is concluded that it is probably largely a reflection of a parallelism in the emotional health of the girls and their mothers.

The practical implications of the findings are discussed.

I am indebted to Nursing Sister V. Mbambo, who administered the questionnaires, to Nurse-Aide A. Perumal, to Mr. S. M. A. Meggitt for his statistical advice and assistance, and to the girls and women themselves.

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THE SCOPE OF SOUTH AFRICAN ANTI-SNAKEBITE SERA

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The following anti-snakebite sera are produced in South Africa.

1. Polyvalent anti-snakebite serum, prepared with the venoms of *Hemachatus haemachates* (ringhals), *Naja nivea* (Cape cobra), and *Bitis arietans* (puff-adder).

2. Polyvalent tropical anti-snakebite serum, prepared with the venom of *Bitis gabonica* (Gaboon adder) in addition to the 3 venoms just mentioned.

3. Monovalent *Echis* antivenom, prepared with the venom of the saw-scaled sand viper *E. carinatus* which, though not found in South Africa, is widely distributed through parts of Africa and Asia.

4. Monovalent *Dendroaspis* antivenom, prepared with the venom of the tropical mamba *D. jamesoni*.

The ordinary polyvalent serum is intended for use in Southern Africa. It has high neutralizing powers not only against the venoms of the ringhals and the Cape cobra, but also against those of *Naja nigricollis* (spitting black-necked cobra), *Naja haje* (Egyptian cobra), and *Naja melanoleuca* (black-lipped forest cobra). It may therefore be used with confidence in cases of bite by practically all the cobras likely to cause accidents in Africa and, furthermore, it is capable of neutralizing the venoms of the common Indian cobra (*Naja naja*) and the Indian king cobra (*Naja hannah*).

Although the ordinary polyvalent serum is extremely potent against the venom of the ubiquitous puff-adder and has a demonstrable but not marked effect on *Causus* (night-adder) venom and on the venoms of the tropical vipers *B. gabonica* and *Bitis nasicornis* (rhinoceros viper), the polyvalent tropical serum is the better choice where these vipers prevail. The monovalent *Echis* serum has some effect on the venom of the North African *Cerastes cornutus*, but is of no value against South African snake venoms. It was prepared following requests from parts of Africa where the small but dangerous *Echis carinatus* abounds and, according to reports received, it has proved to be highly effective. It is commonly believed that the polyvalent sera are useful in the treatment of mamba bite, and the main purpose of this note is to clarify this point.

Disregarding subspecies, there are 4 mambas, *Dendroaspis viridis, D. jamesoni, D. polylepis,* and *D. angusticeps*. The 2 last species, commonly called the black and the green mamba, are found in South Africa and were, until recently, considered to be variants of the same species, *D. angusticeps*. The other 2 mambas inhabit parts of tropical Africa. *D. viridis* venom was not obtained, but it is unlikely that sera of the types prepared up to the present will have any effect on it. Toxicity tests and the results of neutralization tests, using the other 3 mamba venoms and polyvalent serum, *D. jamesoni* antivenom, and a serum prepared with South African mamba (mainly *D. polylepis*) venom, showed that these 3 venoms are clearly distinct even if there are slight immunological similarities between the venoms of *D. jamesoni* and *D. polylepis*. Ordinary polyvalent serum has a just measurable effect on these 2 venoms, but neither this serum nor *D. jamesoni* antivenom will protect mice against a 99% killing dose of *D. angusticeps* venom.

These results support the zoological separation of the South African green and black mambas. Their practical implications are that neither polyvalent serum nor *D. jamesoni* antivenom can be expected to influence the outcome of bites by the green mamba, whereas either one or the other or both could be used to treat persons bitten by the black mamba because specific serum is not available.

Bites by *D. jamesoni* should be treated with the specific monovalent serum, polyvalent serum being used only if this is not at hand. Every effort is being made to prepare a polyvalent serum against the venoms of these snakes, but large-scale production is hampered by the difficulty in obtaining adequate amounts of venom. Meanwhile, users of anti-snakebite sera should pay attention to the particular species involved if any claims are made by the makers with regard to specific potency, and loose general statements about any cross-protecting potency against mamba venom should be accepted with great reserve.

The Department of Health of the Union has recently introduced provisional minimum potency requirements for anti-snakebite sera manufactured in South Africa for use in the Union or elsewhere. As far as is known potency control has not, as yet, been established anywhere else in the world. The South African potency requirements stipulate that 0·15 ml., or less, of polyvalent serum issued for sale shall neutralize 0·2 mg. *H. haemachates* (ringhals) venom, 0·2 mg. *N. nivea* (Cape cobra) venom, and 0·4 mg. *B. arietans* (puff-adder) venom when tested intravenously in mice using samples of reference venoms stored and issued by the Department of Health. These venoms will from time to time be tested for toxicity and for antibody-binding power against a dried polyvalent serum also stored by the same authorities. The provisional minimum potency requirements may be changed if the reference venoms are found to be unstable or if improved methods make it reasonable to demand higher standards from the manufacturers of anti-snakebite sera. It is presumably the intention of the Department of Health to expand this potency control to anti-snakebite sera of other types, e.g. to include a minimum requirement for the *B. gabonica* antivenom potency of tropical polyvalent serum.

It is to be hoped that the authorities in other countries will follow this lead and lay down potency requirements for anti-snakebite sera, while bearing in mind the varying predominance of different snake species in the different territories, thus preventing the use of the impotent and sometimes quite crude sera which are offered for sale at prices below the production cost of potent enzyme-refined sera.

EDITORIAL : VAN DIE REDAKSIE

TAPEWORM INFESTATION

Of the tapeworms or cestodes that inhabit the intestine of man four species generally receive consideration: *Taenia saginata* (beef tapeworm), *Taenia solium* (pork tapeworm), *Diphyllobothrium latum* (fish tapeworm), and *Hymenolepis nana* (dwarf tapeworm). Vague gastro-intestinal and nervous disturbances and systemic disorders have been attributed to the presence of these parasites in the host. The larvae of *T. solium*, however, are dangerous because the parasite may lodge anywhere in the body in the stage known as *Cysticercus cellulosae*.

Remarkably little information is available on the results of treatment of tapeworm infestations under standard conditions. The treatment of helminthiasis in general has been continually improved by the introduction of new anthelminthics. The ideal agent, however, remains to be discovered. The therapeutic effectiveness of the drugs in current use is often doubtful; they are toxic, unsuitable in general for mass treatment, and unable to control infestation by multiple parasites. The efficacy of different anthelminthics in tapeworm infestation is not really satisfactory. A few drugs are available and their relative merits remain to be assessed. The classic remedy has been male-fern extract, but synthetic compounds have come to be used in recent years such as mepacrine (atebrin) which some regard as the anthelminthic of choice. Other drugs which are used are dichlorophen (dicestrol), tetrachloroethylene, and hexylresorcinol.

An investigation carried out at the Hospital for Tropical Diseases, London, on 240 patients, with the object of assessing several methods of treatment, has recently been reported.[1] Male-fern extract was administered in mixtures, 'ribena' being used as a flavouring agent for young children. The extract was also administered by duodenal intubation, preferably as a mixture, since the plain extract is viscid and adheres to the tube, while allowance was also made for the internal volume of the tube. In other words, it was necessary to administer 15 ml. from the syringe in order to deliver 8 ml. from the particular tube used. It is important to determine beforehand what amount is needed to fill the tube and to deliver the particular dose from its end. The tube must be swallowed empty if the patient is to avoid getting the unpleasant taste of the extract. Mepacrine (1 g. in 42 ml. of water) was administered orally to some patients, and through a duodenal tube to others. A number of patients received both drugs, mepacrine 0·3 g. in the evening and the next morning, with an emulsion of male-fern extract administered three hours later.

The before-and-after treatment followed the usual lines. The importance of finding the head of the worm need hardly be emphasized. When mepacrine treatment is successful the worm is passed intact and is bright yellow in colour.

Statistical analysis of the results obtained with the five methods of treatment showed that, in this series, the differences obtained are no more than might arise by chance. Male-fern extract and mepacrine proved to be of equal value. Important points that need to be emphasized to avoid poor results when these anthelminthics are used include the following: Adequate fasting, preferably for 72 hours (bland fluids other than milk being permitted); the administration of the anthelminthic in a draught or by duodenal tube in preference to capsules which may not rupture; and taking into account the amount required to fill the duodenal tube when this is used to administer the drug. The head of the worm must be recovered, and patients should be followed up for four months at least in cases where the head is not discovered after treatment. Failure of treatment because of vomiting occurred more frequently among those treated with mepacrine than with male-fern extract. The actual difference was not great, but the importance of vomiting in those suffering from infestation with *T. solium* lies in the fact that segments brought up into the stomach and upper small intestine may be digested; the liberated larvae may then gain entry into the body to produce infection with cysticerci. The results obtained with dichlorophen in the investigation referred to above were not so good as with the two anthelminthics already mentioned. Incidentally, dichlorophen has certain special disadvantages: The dose is large—one large tablet for every 16 lb. of body weight. The parasite is disintegrated by the drug, so that success must be judged by watching for a recurrence. Finally, in *T. solium* infestation it has been pointed out that there is danger with this agent of the human being acquiring a condition like pig 'measles', from the release of hundreds of thousands of eggs in the intestine.[2]

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DIE VLUGTELING EN DIE ONTWORTELDE MENS

Ons het reeds al by 'n vorige geleentheid[1] daarop gewys dat die twintigste eeu met sy besondere politieke en maatskaplike probleme, en met sy stryd om lewensruimte en die selfbeskikking van nasies, vir die geneesheer van die moderne tyd probleme geskep het wat sy voorgangers in dié beroep nie geken het nie. Een van dié probleme is die verskynsel van die ontwortelde mens — 'n verskynsel wat op baie vlakke van die lewe aangetref word, maar wat nou weer veral beklemtoon is deur die groot aantal vlugtelinge uit Afrika en uit ander dele van die wêreld.

Dat daar 'n groot aantal vlugtelinge was wat gedurende en na die Tweede Wêreldoorlog van hul huise af moes vlug, is 'n bekende feit. Hoe groot die omvang van die probleem is, word egter nie altyd helder gestel nie. Dit word byvoorbeeld nie altyd besef dat (volgens sommige berekeninge) nagenoeg sewentig miljoen mense gedurende die oorlog uit hul huise verdryf is nie. Ook word dit nie altyd besef dat hierdie proses nog nie opgehou het nie en dat daar nog steeds in Europa 'n konstante stroom van vlugtelinge is — dat sedert die oorlog nog 'n verdere

veertig miljoen mense deur dieselfde lot getref is. En daarby kom nou die groot stroom van vlugtelinge uit die verskillende state in Afrika.

Dit is dus belangrik om aan te toon dat die probleem van die vlugteling-mens nie iets van die verlede is nie, maar dat dit 'n akute probleem is waarvoor ons elke dag te staan kom. Dit is ook belangrik om aan te toon dat daar groot groepe mense is wat volstrek haweloos is, wat in niemandslandse kampe woon en wat nou nêrens tuis is nie. Daar is byvoorbeeld in Duitsland duisende nie-Duitse vlugtelinge wat hoofsaaklik uit Pole en Hongarye afkomstig is. In die Arabiese lande is daar miljoene Arabiere wat deur die Verenigde Volke aan die lewe gehou moet word. In Hongkong is daar miljoene Chinese wat geen tuiste het nie en wat nie van die Eiland af kan wegkom nie. En daar is geslagte van jongmense en kinders orals oor die wêreld wat nooit geen ouers of tuiste geken het nie.

Om aan hierdie probleem iets daadwerkliks te doen, is gedurende die afgelope jaar die Internasionale Vlugtelingejaar ingestel. Die bedoeling was om hulp te verleen om vlugtelinge uit hul kampe te verwyder en hulle te help om hulself weer opnuut in normale omgewings aan te pas. Goeie werk is weliswaar in hierdie opsig gedoen, maar veel moet nog gedoen word. En nou is daar die nuwe stroom van vlugtelinge uit Afrika.

Hierdie verskynsel van die vlugteling-mens en van die grootskaalse ontworteling van persone, gesinne, en groepe van mense kan nie anders nie as om 'n ongunstige neerslag te hê op die samelewing in die geheel nie. En daarom is dit ook duidelik dat die geneesheer nie dié probleem en sy sekondêre gevolge kan ontvlug nie.

In die gewone loop van sake moet elke geneesheer persone en pasiënte teenkom wat onder die ontredderende slae van hierdie soort ontworteling deurgeloop het. Hulle mag nie mense wees wat in die gewone sin van die woord siek is nie, maar hulle het omtrent altyd hulp en leiding en advies nodig om hulle in staat te stel om 'n redelike heraanpassing te maak.

Maar dit is nie net by afsonderlike persone dat die nadelige gevolge van die toestand waaroor ons skryf tot uiting kom nie. In elke samelewing en in die breëre wêreld is daar 'n toestand van ongewenste onsekerheid en spanning wat nie gesond is nie. Dit is nie verniet dat kalmeer- en bedaarmiddels ter waarde van baie miljoene ponde gereeld verkoop word nie. Die behoefte aan hierdie middels bestaan sonder twyfel by die miljoene mense omdat dit by hulle aan innerlike kalmte en rus ontbreek. En dit is wel waar dat daar vir hierdie gespannendheid baie redes en oorsake is. Dit is egter ook waar dat die nimmereindigende vlugtelinge-stroom so 'n mate van onrus en so 'n morbiede basiese gesteldheid openbaar dat ons kan sê dat bekommernis en spanning die neurotiese idioom van ons tyd geword het.

Selfs ten spyte van 'n moontlike aantyging van naïef te wees, wil ons dit hier duidelik stel: In die uitbouing van sy lewenstyl en in sy soeke na mag het die moderne mens asemrowende ontdekkings gemaak en wonderlike prestasies behaal. Wat hy egter nog nie geleer het nie is hoe om met sy ewemens in vrede saam te leef. Maar dit is nie iets wat onbepaald veronagsaam kan word nie. As ons as mense en as mensdom staande wil bly sal ons die formule moet vind wat ons in staat sal stel om te leef en te laat leef. Toe die filosoof Hobbes gesê het dat die mens vir die mens 'n wolf is, het hy in 'n groot mate ook die geestelike en maatskaplike milieu van hierdie eeu voorspel.

Om die hele benadering tot behoudende gemeenskapspatrone moontlik te maak, sal alle kragte ingespan moet word. Onderwysers en sielkundiges en maatskaplike werkers en geneeshere sal hierby hul bydraes moet lewer. Wat die geneeskundige beroep betref is dít die uitdaging waarvoor ons staan: Kan die medisyne (en veral die voorbehoedende medisyne) 'n positiewe bydrae maak tot die bereiking van 'n gesonder en bestendiger menswaardige lewe vir almal?

1. Van die Redaksie (1958): S.Afr. T. Geneesk., **32**, 700.

SURGERY IN THE NEWBORN*

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Fewer than 50 years have elapsed since it first became apparent that sick children require the care of trained paediatricians. Today, paediatrics is so well established that no one any longer questions the necessity of having a capable paediatrician in charge of a sick child. Paediatric surgery has lagged behind.[28,62] For many years it was generally assumed that an infant was merely a small person to whom the principles of adult surgery could be applied. As long as a smaller incision was made, and smaller instruments were used, the requirements were fulfilled.[42]

Thirty years ago Sir Lancelot Barrington Ward,[2] of the Great Ormond Street Hospital, most aptly remarked: 'The adult may safely be treated as a child, but the converse can lead to disaster'. This is well illustrated by a recent survey made by Rickham[53] of all infants born with urgent surgical conditions in the Liverpool area during 1949. He found that during that year 75 neonates with urgent surgical conditions were admitted to 14 hospitals, where they were treated by various general surgeons. The mortality rate was 72%. Here in Cape Town before 1952 the mortality in neonates from conditions such as tracheo-oesophageal fistula, diaphragmatic hernia and intestinal atresia was 100%. Until that time our custom, in common with that of many others, was to rely on the paediatrician to make the diagnosis, prepare the child for operation, and take charge of the post-operative care. The surgical consultant, who was called in for the operation only, was used merely as a technician or craftsman.[28] The poor results speak for themselves.

Neonatal surgical emergencies are not common and few general surgeons see more than a couple of cases during their

* Paper read at the Fourth Congress of the South African Paediatric Association (M.A.S.A.), Cape Town, 5 April 1960.

professional lifetime. This type of work, therefore, can occupy no more than a fraction of the general surgeon's time and he cannot expect to become proficient in the entire care of the infant. However, the field is broad enough to maintain the interest of a paediatric surgeon and difficult enough to demand his utmost in skill and ingenuity.[46]

Approximately 4% of infants are born with extensive deformities.[47] Only a few—a small fraction of 1%—cannot be saved by surgery; the remainder are all amenable to skilled surgical treatment. Rickham[53] estimates the incidence of urgent surgical conditions in the neonatal period at 2 per 1,000 live births. During the past 9 years 406 cases have been treated in our unit (Fig. 1). These cases have come from the Greater Cape Town area, where the number of live births is approximately 18,000 per year, i.e. 162,000 during the 9-year period, which gives an incidence of 2·5 'surgical cases' per 1,000 live births. However, when it is considered that over 300,000 infants are born in South Africa each year, it should be obvious that the total number of neonatal surgical emergencies in the country as a whole is far from insignificant.

It is true that the numbers are comparatively small. Nevertheless, these malformations still constitute the 'hard core' of neonatal mortality.[38] Fig. 1 reflects the type of

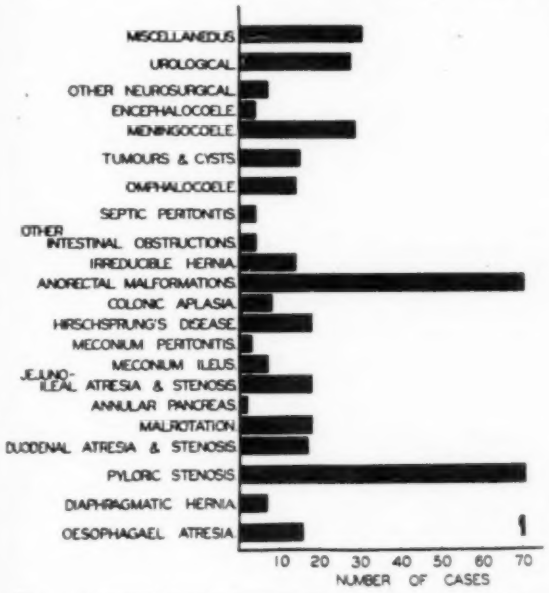

Fig. . Neonatal surgical emergencies seen at the teaching hospitals of the University of Cape Town, 1952 onwards.

problem encountered. Most of these anomalies are inevitably fatal if untreated but are today amenable to surgical correction.[4,25] This applies particularly to 5 groups, viz. oesophageal atresia (16 cases), diaphragmatic hernia (8 cases), intestinal obstructions (109 cases), anorectal malformations (71 cases) and omphaloceles (14 cases).

Recent advances in the surgery of infancy and childhood have reduced the total mortality rate of neonatal surgical emergencies treated in special centres to 20% and less, and in many of the babies successful surgery has resulted in a normal child with an expectancy of life which is far greater than that found in any other branch of surgery.[18,19,47,51,53,62] Our results in the 5 important groups are given in Table I.

TABLE I. MORTALITY OF COMMON NEONATAL SURGICAL EMERGENCIES: CAPE TOWN UNIVERSITY TEACHING HOSPITALS 1952 - 59

Anomaly	*Mortality*
Diaphragmatic hernia	50%
Oesophageal atresia	40%
Intestinal atresia	33%
Omphalocele	20%
Rectal agenesis	5%
Average of above anomalies	20%

It must be emphasized, however, that such a significant reduction in mortality is only possible if all those who are concerned with the care of the newborn infant are aware of the possibilities, and are on the alert to make the diagnosis sufficiently early for surgery to be successful.[38,62] This is the main justification for a paper of this kind which has nothing original to report.

(A) UNCONTROLLABLE FACTORS

Before discussing the management of newborn infants suffering from surgical ailments I wish to draw attention to 2 factors which affect the results adversely and which are largely beyond our control. These are (1) the tendency for congenital anomalies to be multiple, and (2) prematurity.[4,18]

1. *Multiple Congenital Abnormalities*

Multiple anomalies were present in nearly 25% of our cases and contributed to at least one-third of the deaths. The presence of multiple deformities in the same infant is no doubt related to the genesis of malformations in general and points to an aetiological factor operating during the very early months of pregnancy and affecting many systems at a stage when they are undergoing active differentiation.[35,60] Their presence may not be immediately apparent and the attending doctor must therefore be alert to the possibility and search for unsuspected anomalies,[55] including, for instance, the following:

(*a*) Oesophageal atresia is often associated with cardiovascular, anorectal and intestinal anomalies.

(*b*) Diaphragmatic hernia was accompanied by intestinal malrotation in almost 50% of our cases.

(*c*) Duodenal atresia is commonly found in mongols. In previous articles we reported that about one-third of babies presenting with duodenal occlusions were mongols,[5,31,32] and that other intestinal atresias were multiple in 10% of cases.[32,34,35]

(*d*) Rectal agenesis was associated with vertebral malformations in 50% of our cases, urinary anomalies in 60%, and other deformities, especially of the oesophagus and heart, in 65%.

(*e*) In omphalocele there is a higher incidence of associated malformations than in any other congenital anomaly.[47]

2. *Prematurity*

In our series of neonatal surgical emergencies almost 50% of the infants were premature. This alone is an important cause of death in newborn infants,[18] and of our cases who succumbed after operation nearly two-thirds weighed less than 5 lb.

Paediatricians in many countries have achieved remarkable success in lowering the neonatal mortality by tackling the problem of the care of the premature baby on a national

basis.[53] Surgeons can lower the mortality in this group even further by being thoroughly familiar with the care of the premature infant[16] and modifying the corrective surgical procedures in such a way that only the bare minimum for immediate survival is done in the first place.[18,25]

(B) CONTROLLABLE FACTORS

There are obviously many and varied factors which make for success in neonatal surgery and it is difficult to single out any particular one; but, in short, the secret of success lies in scrupulous attention to detail. The surgical infant requires service 24 hours a day, 60 minutes an hour and 60 seconds a minute. Just that extra little bit of attention may tip the scale in the right direction. Whether this attention be early diagnosis; a small trick in surgical technique; the judicious use of blood or plasma; aspiration of pharyngeal secretions; irrigation of a blocked nasogastric tube; changing of the infant's position regularly; or some other minor detail; it is the sum total of these procedures that saves a tottering case.[36]

Only the most important factors can be discussed and I shall deal with them in chronological sequence rather than on a basis of priority by importance:

1. Early Diagnosis

Time is an important and often a vital factor in all disease[6] and nowhere is this better illustrated than in neonatal surgical emergencies. Thus, in an analysis of intestinal atresia and stenosis treated at Great Ormond Street Hospital up to 1951, I found that no infant operated upon after the 6th day of life

TABLE II. AGE AT OPERATION IN 39 URGENT CASES

Age (hours)	*No. of Cases*	*Deaths*	*Mortality*
Under 24	5	1	20%
24 - 48	7	3	43%
48 - 72	8	4	50%
72 - 96	5	3	60%
96 - 120	5	3	60%
120 - 144	3	2	67%
Over 144	6	5	83%

survived.[33] There was also a close correlation between the age of the infant at operation and the mortality. In the present series there has been a similar correlation; and in 39 urgent cases that I reviewed in 1954 the mortality rose from 20% in those operated on in the 1st day of life to 83% in those operated on after the 6th day[21] (Table II).

If he is to have the opportunity of saving even a few valuable lives the surgeon is absolutely dependent upon those who have the responsibility of the initial care of the newborn.[38] This applies *par excellence* to infants suffering from congenital diaphragmatic hernia and ruptured omphalocele. In oesophageal atresia, the various intestinal obstructions, and rectal agenesis, the urgency of early diagnosis is almost as great.[19,62]

Prompt diagnosis requires no particular diagnostic acumen or skill. It merely demands a few elementary requisites:

(*a*) *Recognition of Prenatal Warning Signs*

The practitioner, obstetrician and paediatrician should be aware of the fact that congenital anomalies tend to occur with a high degree of frequency in cases of hydramnios, prematurity and multiple pregnancy.[21,32] In such cases a special effort should be made to exclude the presence of any serious abnormality, particularly oesophageal and duodenal atresia.

(*b*) *Thorough General Examination of the Infant at Birth*

Denis Browne has said that the baby at birth should receive the same attention as is usually bestowed upon a new motor car or a favourite racehorse. There is no excuse for not examining the newborn infant thoroughly from head to foot before it is bound and swathed in diapers, binders, ribbons, booties and other impedimenta which render examination virtually impossible.[47]

Inspection of the naked infant on a table is all that is required to make a diagnosis of several serious anomalies, e.g. omphalocele, meningocele, encephalocele, extrophy, and gross external deformities. Visual examination of the abdomen may reveal the distension of intestinal obstruction or the scaphoid abdominal wall of diaphragmatic hernia.[4] In the latter, simple inspection of the chest may be all that is required to detect asymmetrical expansion of the two sides and displacement of the mediastinum. A glance at the anogenital area will serve to make a diagnosis in all but the rarest of anorectal malformations and may even reveal the presence of an unsuspected strangulated hernia.

Palpation may lead to the discovery of distended intestinal loops or abnormal abdominal masses, confirm displacement of the heart in suspected diaphragmatic hernia, or even detect the absence of the femoral pulses resulting from coarctation.[47]

Percussion may elicit a tympanitic note over a chest filled with bowel, or dullness in the flanks of the abdomen containing free fluid.

Auscultation may be as rewarding, particularly if bowel sounds are heard in the chest or gross cardiac murmurs are present.

(*c*) *Awareness of the Significance of Cyanosis, Vomiting and Drooling*

The doctor should be aware of certain ominous symptoms and signs which will enable him to diagnose most internal malformations almost at birth. Here I refer particularly to cyanosis, vomiting and excessive drooling.

Cyanosis must always be regarded with grave suspicion.[19,62] It is an early symptom of diaphragmatic hernia. It will occur, admittedly periodically, within a few hours of birth in all cases of oesophageal atresia, and it may be a sign of a serious cardiac anomaly, pulmonary pathology, or cerebral trauma.

Vomiting is as important.[19,62] Prof. Findlay Ford[16] has stated quite categorically that a newborn infant properly handled and fed does not vomit. In my humble opinion too much emphasis is often placed on the question of handling and feeding with resultant disregard of the sinister symptom of vomiting. Vomiting that proceeds throughout the first day of life requires urgent investigation. Vomiting that is bile-stained is very serious, and should be regarded as due to intestinal obstruction until disproved.[22,41,51,61]

The production of excessive frothy mucus associated with persistent drooling and bubbly saliva[19,61,62] is another significant although uncommon symptom. Any infant who shows difficulty in handling his pharyngeal mucus should immediately raise the suspicion of oesophageal atresia.[4] The baby is literally blowing bubbles to preserve his life and attempts at feeding may have disastrous consequences, because of regurgitation, aspiration and suffocation.

(d) Digital Rectal Examination

It is disturbing but true that the diagnosis of an anal membrane is usually made by a junior nurse who, in attempting to take the baby's temperature, finds that the thermometer cannot be passed. The moral is a simple one; viz.: Inspection of the perineum may not be enough to diagnose some of the rarer forms of anorectal malformations and 'if you do not put your (little) finger into it, you will put your (big) foot into it'. Digital examination of the rectum may also clarify the diagnosis of neonatal Hirschsprung's disease.[62]

(e) The Non-urological Use of the Urinary Catheter

In some cases of Hirschsprung's disease and some anorectal malformations it may be necessary to pass a rectal catheter to make the diagnosis. This should be routine in all patients with abdominal distension associated with a delay in the passage of meconium.

Another special manoeuvre that is sometimes required is to pass a catheter into the oesophagus. This should be done whenever there is persistent accumulation of frothy mucus in the pharynx and also in all cases presenting with rectal anomalies, because of the frequent association of anorectal and oesophageal malformations. A firm catheter, size 8 - 10 (Jacques type) should be used—softer catheters tend to curl up in a blind oesophageal pouch and may be misleading.[19]

(f) Radiological Examination—its Uses and Abuses

Confirmation of the diagnosis usually requires nothing more than plain X-rays of the chest and abdomen.[19,62] Such investigation should, however, be deferred until the infant has been transferred to a special paediatric centre. This will not only save invaluable time, but will also avoid unnecessary mistakes, which are only too frequently made by those who are unaccustomed to radiography in small infants.[46,56] A special word of warning must be sounded about the grave danger of giving barium by mouth to newborn infants, especially those suffering from oesophageal or intestinal obstruction. The barium is readily regurgitated or vomited and then aspirated into the lungs, with the development of serious atelectasis and bronchopneumonia.[32] If any X-rays have inadvisedly been taken they must be sent with the child to hospital.

It has been stated that delay in diagnosing these congenital defects implies either professional ignorance or poorly managed neonatal nursing. The following facts may thus be somewhat revealing:

(*a*) Less than one-third of our patients were diagnosed during the first 48 hours of life.

(*b*) One of our cases of oesophageal atresia was 9 days old on admission, and another, born in a maternity institution, 7 days old.

(*c*) A baby suffering from a large diaphragmatic hernia with intense respiratory distress was referred to us from another maternity institution 48 hours after birth with a diagnosis of staphylococcal pneumonia.

(*d*) Only 5 of our cases of intestinal obstruction were diagnosed by the 2nd day of life, and 27% were more than 5 days old on admission.

(*e*) Omphaloceles are usually recognized early (because they get in the way when the cord has to be tied), but even with them mistakes are made. One of our cases had his hernia ruptured by a paediatrician who failed to recognize the anomaly and inquisitively poked his finger right through the sac.

(*f*) Only one of our cases of imperforate anal membrane was correctly diagnosed before admission to hospital and several cases with obvious anorectal malformations were referred to us on the 4th or 5th days of life!

The attendant who accepts the care of newborn infants should be alert and constantly on guard, accustomed to watching normal activity and immediately suspicious of any alterations in behaviour which could mean trouble ahead. This applies not only to every paediatrician, obstetrician and general practitioner, but also to midwives and medical students who may bring these unfortunate babies into the world. All medical and nursing personnel who deal with newborn infants should be trained in the recognition and first-aid treatment of neonatal surgical emergencies.[22]

2. Concentration of the Patients in a Central Paediatric Surgical Unit

The desirability of treating surgically-ill infants in a special unit is obvious. Today it is not only desirable but essential[29,53] and merits some discussion:

(a) Transport to the Centre

The responsibility of early and safe transport of the infant to a proper centre rests upon the general practitioner, obstetrician and paediatrician.[3,15] Having made a prompt diagnosis it is then their duty to act with dispatch, because the salvage rate diminishes with every passing hour.

There is an idea prevailing that neonates do not tolerate transport. This is a misconception.[8] Newborn babies, having successfully survived a journey lasting many hours through the vaginal canal, where they have been pushed from behind, squeezed from the sides, and often pulled from the front, will tolerate a comfortable car trip or air flight with ease and safety. There is thus no excuse for not getting the infant to a special hospital, no matter how remote he may be from such a centre.[3,15] It is certainly far wiser to transfer the baby to a special institution than to attempt treatment, usually inexpert and doomed to failure, in the home village or town.

Ideally, the infant should be transported in a portable incubator at 85° to 88°F,[15] but this is often not possible. In most cases it will suffice to have the baby in a carry-cot, or simply on the lap and wrapped up in blankets. It is desirable that oxygen should be given, especially during air travel, and this is easily achieved by means of a simple face cone.

During transport the infant should be nursed lying flat or on its side and disturbed as little as possible. No feeds, not even water, should be given by mouth and intravenous or subcutaneous fluids are seldom necessary—it is perfectly safe, and indeed advisable, to give no fluids at all for 36 - 48 hours.

It is usually necessary to keep the nose, mouth and pharynx clear of secretions by regular aspiration (every quarter to half hour, if necessary) with a Queen Charlotte's mucus extractor. If there is any tendency to vomiting, a catheter (size 8F) should be passed into the stomach, which is then emptied regularly with an ordinary 20 c.c. syringe.

In certain cases special precautions have to be taken; for example, omphaloceles, meningoceles and encephaloceles should be covered with sponges soaked in mild antiseptic, such as cetavlon or hibitane and protected from trauma. If there is a risk of infection, penicillin (30,000 units) should be given and it is advisable to administer 2 mg. of vitamin

K in infants who are likely to require surgery. Full details of all treatment given must be sent with the child.

It is obvious that the infant should be accompanied by a competent nurse and/or medical attendant, and it is a good thing for the father to go along as well to fill in the necessary admission forms and sign consent for operation.[3]

(*b*) *Locality of the Centre*

These infants can be properly cared for only in a special

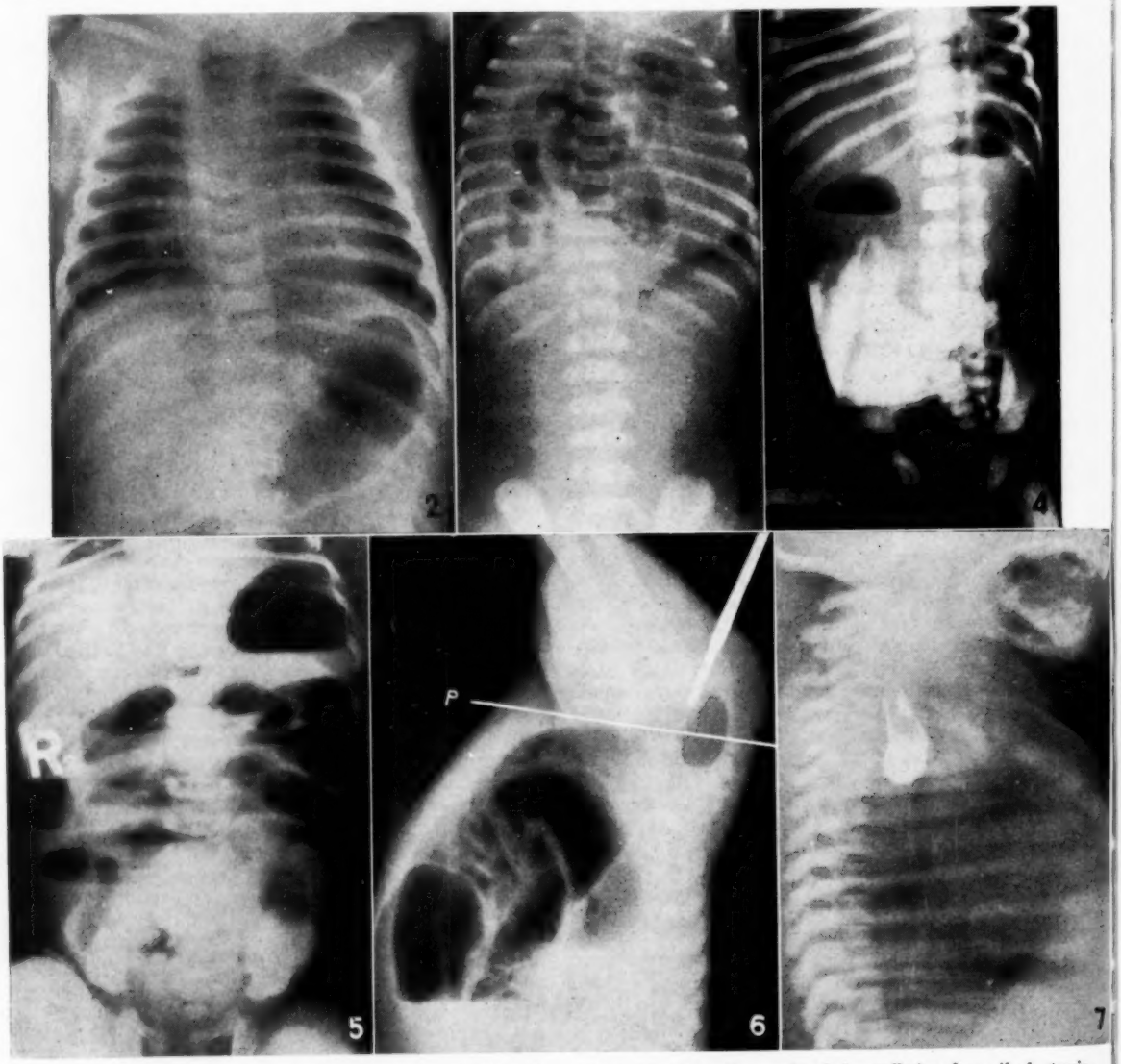

Fig. 2. Plain X-ray of a baby suffering from oesophageal atresia. Note the gas in the upper blind pouch. The presence of gas in the stomach indicates that a fistula exists between the lower oesophageal segment and the trachea.

Fig. 3. Plain X-ray of a baby suffering from a large left postero-lateral diaphragmatic hernia (Bochdalek type). The left hemithorax contains gas-filled intestinal loops, the heart is displaced to the right, and the abdomen contains hardly any gas shadows.

Fig. 4. Plain X-ray of a baby suffering from duodenal atresia. Note the characteristic 'twin fluid levels' with no gas in the intestine beyond the duodenum.

Fig. 5. Plain X-ray of a baby suffering from ileal atresia, showing diagnostic multiple fluid levels.

Fig. 6. Plain X-ray of a baby suffering from an imperforate anal membrane. The film was taken with the child in the inverted position and a thermometer was placed into the blind anal canal. Note that the thermometer impinges on the gas shadow in the rectum, indicating the presence of a membrane.

Fig. 7. X-ray of a baby suffering from oesophageal atresia. Lipiodol (1 ml.) was instilled into the upper blind oesophageal pouch.

children's institution which has a separate and unified area, adapted to, and staffed for, surgical care.[18,29,36] Only in large children's hospitals will it be possible to find a team with the necessary training and experience. No surgeon can undertake this type of surgery with any hope of success unless he has the close cooperation of experienced anaesthetists, paediatricians, biochemists, pathologists, radiologists and surgical colleagues, as well as willing and devoted residents and a nursing staff specially trained in the nursing of small babies.[42,43,47]

Since neonatal surgical emergencies are relatively infrequent, and since efficiency and skill can be obtained only by intelligent repetition,[46] paediatric surgical units should serve a large population. Only in this way can the team acquire the experience necessary to get satisfactory results.

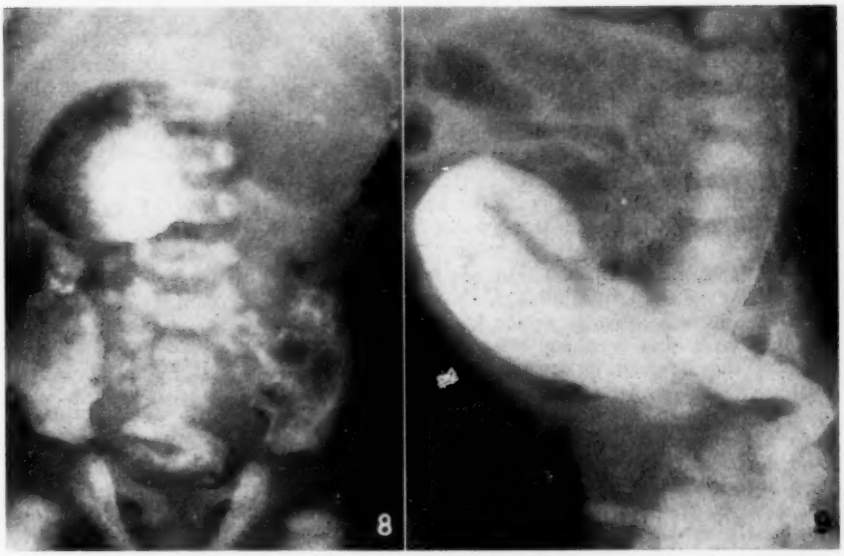

Fig. 8. X-ray of a baby suffering from severe duodenal obstruction due to malrotation of the midgut. The infant was given lipiodol, which is almost completely held up in the large, dilated duodenum.

Fig. 9. Barium-enema X-ray of a newborn infant suffering from Hirschsprung's disease, showing the typical 'narrow segment' with dilated colon proximally.

(*c*) *Personnel*

Modern practice in the surgery of infants and children demands that the surgeon who operates on a child, and particularly on a newborn infant, must be thoroughly familiar with all the phases of pre- and post-operative care.[7,19,23,40,46,62] He should be conversant with the factors of early development, both pre- and postnatal.[28,36] He should have a deeply ingrained affection for children; he should be able to attend to feeding problems; he should have an accurate knowledge of electrolyte, fluid and other physiological requirements; he should know how to act with dispatch in times of emergency and he should have the 'caressing touch', so important when handling the delicate and fragile tissues of the infant.[46] In short, his responsibility is the total care of the child and the surgeon alone must assume the full responsibility.[19,46] In this type of surgery, more than in any other branch of surgery, there is no longer room for the occasional operator, who visits the hospital on a rotating scheme or perhaps only when he feels so inclined.[23,62]

It is not suggested that *all* children's surgery should be done by children's surgeons, but it must be pointed out that in infants, especially newborn infants, the mortality and morbidity of surgical procedures are greatly reduced when the patients become the sole concern of a specially trained surgeon instead of part of a much broader field of surgical endeavour.[19,23,27,39] Today in the USA and the UK the medical profession is seeking, and parents are demanding, that infants should receive the same expert care from surgeons that paediatricians offer for their medical ills.[47]

It must be emphasized, however, that one man alone cannot expect to manage by himself the newborn infant who has had an operation. He must be assisted by a team consisting in the first place of residents who are already seasoned trainee-surgeons and in addition desirous of extending their training into this field. These men should be alert enough to recognize even the slightest change in the infant's condition. They should be adept at setting up intravenous infusions. They should be able to use a laryngoscope and pass an endotracheal tube, and they should be capable of dealing efficiently with all the numerous emergencies that occur so suddenly and dramatically in a newborn baby. Above all, they should have a devotion to duty which will render their trying task of acting as round-the-clock watchmen a pleasure and not an arduous duty.

In addition, the absolute necessity of having nursing staff skilled in the care of this type of patient is obvious.[17] To obtain the best results and avoid catastrophe in the surgical problems of early life, special training in this field by all concerned is required. It is indeed a pity that the South African Nursing Council does not recognize this basic fact and that the Red Cross Children's Hospital still has to cope with inadequate numbers of trained sisters helped by nurse aids.

3. Adequate Pre-operative Management

(*a*) *Minimal Interference*

The tolerance of newborn babies for corrective surgery is remarkably good, provided it has not been weakened by delay in diagnosis or over-enthusiastic investigation and treatment.[4] The newborn baby is acclimatized to the protected existence of intra-uterine life, and the less he is handled the better.[18,36] A rigid 'hands off' policy, except for essential procedures, should therefore be enforced.

Elaborate diagnostic procedures are seldom necessary. Extensive haematological and biochemical determinations

are not required, and may be misleading. Over-treatment may be more disastrous than under-treatment. C. A. Smith's words[58] are particularly applicable to the management of newborn infants undergoing surgery: 'We should approach our newborn patients gently, watchfully and, above all, repeatedly, but always consider whether what we observe may not be within normal limits for them. If we ask ourselves, first, may this not be acceptable neonatal behaviour and, second, am I sure that I can correct it any better than the infant can, if left to himself, we would be making what seems to me a proper approach to the newborn infant'.

Plain films of the chest and abdomen (erect and supine) are usually all that is required to make a diagnosis of oesophageal atresia (Fig. 2), diaphragmatic hernia (Fig. 3), duodenal occlusion (Fig. 4) and other intestinal obstructions (Fig. 5). In cases of suspected rectal agenesis, imperforate anal membrane, or imperforate anus, lateral films of the baby in the inverted position are of value (Fig. 6).

Contrast media by mouth may be required in cases of oesophageal atresia and incomplete intestinal obstruction. In the former, 0·5 - 1 ml. of lipiodol is injected into the upper blind pouch through the catheter that has been previously passed (Fig. 7). In the latter, lipiodol is far safer, although admittedly less satisfactory, than thin barium (Fig. 8).

Lipiodol or barium enema examination is occasionally helpful in cases of intestinal obstruction, to differentiate between atresia, meconium retention, and neonatal Hirschsprung's disease[55] (Fig. 9).

(*b*) *Constant Observation*

The status of a surgically-ill newborn infant sometimes changes drastically in a matter of seconds. The need for constant observation by an experienced person, therefore, cannot be over-emphasized.[16] We feel so strongly about this that all our cases are 'specialled', not only by the nurse in charge, but also by a senior registrar who is competent to deal with respiratory and other emergencies as soon as they occur. Early recognition of any 'change for the worse', and prompt action in correcting its course, is often life-saving. There is little doubt that our salvage rate has been almost doubled simply by observance of this rule; such professional supervision is the only way of preventing unnecessary complications and death.

(*c*) *Isolation and Control of the Infant's Environment*

Newborn infants are susceptible to infection, tend to have an immature heat-regulating mechanism, and have a limited respiratory reserve.[18,58] Susceptibility to infection is related to their immature immune mechanisms and lack of antibodies. Protection from bacteria is, therefore, of vital importance.

Premature infants, in particular, tend to cool down quickly,[19,54,63] and many of our cases, especially those who had been transported, had very low body temperatures by the time that they were admitted to hospital. Excessive cooling carries the risk of sclerema, and it has been shown that the survival rate of premature babies can be increased by reducing their heat loss during the first 5 days of life. Heat loss can be reduced not only by increasing the environmental temperature but also by increasing the humidity to 80 - 90%.[63]

Another important factor which affects survival rate is the limited respiratory reserve of newborn infants.[19,44,58] Their breathing depends to a large extent on abdominal respiratory movements and is therefore seriously reduced by abdominal distension. Furthermore, the respiratory reserve tends to be reduced even further by the presence of atelectasis and tenacious pharyngeal and tracheal secretions blocking the airways.

A modern incubator is therefore absolutely essential for the care of neonates requiring surgery.[4] In America the Isolette type is generally used; we use the Dräger type (Fig. 10). Not only does it isolate the infant and thereby lessen the risk of cross-infection, but it also allows him to be nursed naked without being exposed to draughts and sudden changes of temperature. At the same time, the plexiglass construction allows constant observation of the infant without any disturbance. The modern incubator allows for regulation of heat, oxygen supply and extra humidity, all of which are vitally important in the care of these infants. (Rickham,[66] of Liverpool, has devised a special surgical incubator with facilities for weighing, ready access to the patient's head, inlets for intravenous and other tubing, etc.).

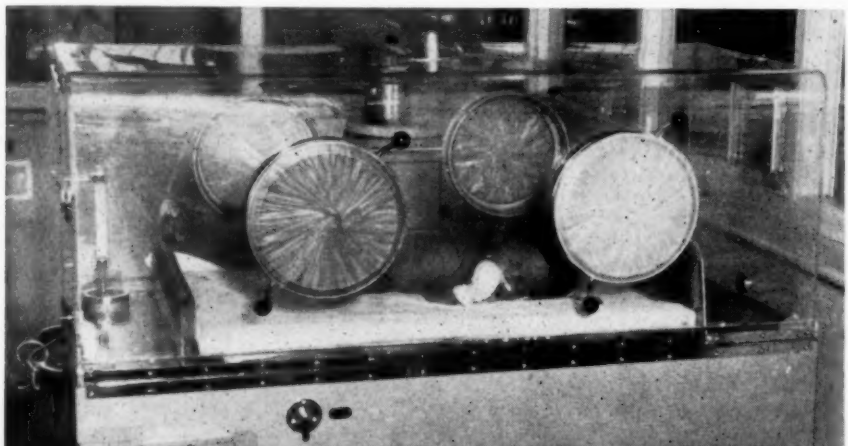

Fig. 10. The type of incubator used for newborn infants submitted to surgery. See text for details.

Any drop in temperature must be immediately corrected by keeping the incubator temperature at 90° - 95°F. Thereafter the incubator should be kept at about 85°F and the baby allowed to establish his own temperature level (97°F).[19] The

humidity should be increased to 80 - 90% to reduce loss of heat, to lessen the tenacity of pharyngeal and tracheal secretions, to loosen plugs of inspissated mucus, and to reduce insensible water loss.

Additional oxygen should be supplied to assist respiration. In general, however, the concentration should not exceed 40% because of the risk of retrolental fibroplasia.

(d) Prevention of Suffocation

One of the greatest dangers to a newborn infant who is suffering from an obstructive lesion of the alimentary tract is inhalation of vomitus and secretions. It is therefore most important to clear the mouth and pharynx by suction whenever necessary. This should not be overdone, however, because too frequent irritation of the mucous membrane by the aspiration catheter will stimulate increased secretions and provoke oedema. As a rule it is unnecessary to suck out the mouth and pharynx more often than every half to one hour (see also under 'post-operative care').

(e) Gastro-intestinal Decompression

Distension of the intestinal tract should be prevented as far as possible.[4,18,19,62] The infant with oesophageal atresia should have a catheter with a single hole at its tip placed into the upper blind pouch, and this should be aspirated at quarter-hourly to half-hourly intervals to prevent overflow and aspiration of secretions into the trachea. All other infants should have a paediatric-sized plastic nasogastric tube (or a multi-holed number-8F urethral catheter) passed into the stomach, and constant siphonage with intermittent hourly suction applied (Fig. 11). Longer tubes which extend beyond the pylorus are difficult to pass and demand too much handling of the infant to justify their use.

In some centres pre-operative gastrostomy under local anaesthesia is often performed to facilitate gastro-intestinal decompression, especially in cases of oesophageal atresia.[18,34,62] Whether this should be introduced as a routine measure is a debatable point.

Fig. 11. The infant-type of plastic nasogastric tube used for gastro-intestinal decompression. This is used for *all* cases undergoing surgery and is passed before the child is taken to the operating theatre.

(f) Hydration

Over-hydration used to be a common cause of death in newborn babies suffering from surgical lesions,[18,19,22,52] and this is probably still so outside special paediatric surgical centres. Surgeons who are not constantly dealing with small babies fail to appreciate that the newborn infant's blood volume is only 40 ml. per lb.[19,30] It is therefore not realized that an intravenous infusion of 40 ml. in a 5 lb. baby is equivalent to an infusion of 1 litre in an adult. The paediatrician, although familiar with this aspect of the problem, is accustomed to dealing with severely dehydrated patients, and is therefore also inclined to give too much fluid.[26]

In recent years paediatric surgeons have aimed at keeping their patients 'on the dry side'.[4,22,52,54,64] This has probably been overdone,[64] particularly in some centres where the babies are kept absolutely dry (i.e. no pre-operative water or electrolytes are given). In this connection it should be noted that infants have a relatively larger surface area per unit of weight than adults have.[58] Loss of fluid may therefore occur rapidly and water deprivation may lead to profound dehydration in a very short time. It is generally agreed, however, that the newborn infant withstands water deprivation extremely well.[1,54,58] The normal newborn infant has excess body water and a large loss of weight, up to 10% of birth weight, is a constant feature of the first few days of life.[63] Premature infants may lose as much as 20% of their birth weight without apparent harm.[63]

Our present practice is aimed not so much at 'keeping the infant dry', as at 'preventing the infant from becoming moist'.[11] Where the diagnosis has been made within 48 hours and there have not been excessive extrarenal losses of fluid by vomiting, we often give *no* pre-operative fluids, for instance, in infants with oesophageal atresia, diaphragmatic hernia, and omphalocele.

In other cases fluids must be given, because it is far simpler and much safer to rehydrate the infant pre-operatively than after surgery. In these cases the degree of dehydration is evaluated on the weight loss since birth (if the birth weight is known) and on clinical signs such as failure to void urine, dry skin, and sunken fontanelles. As regards the clinical appraisal, a reliable working rule is to regard mild dehydration as equivalent to 5% of body weight and severe dehydration as equivalent to 10% (i.e. 20 - 30 ml. and 40 - 60 ml. per pound respectively). Half the calculated amount of fluid may be given at once; a rate of 60 - 80 ml. per hour (10 to 13 drops per minute) is a safe upper limit. The rest is spread over the remainder of 24 hours.

Assessment of the adequacy of rehydration depends upon repeated clinical examinations during administration of the fluid.[1,19,62] The restoration and maintenance of an adequate urinary output are valuable criteria.[62,64] We collect the urine as far as possible (Fig. 12) and hesitate to submit an infant to surgery until adequate urinary excretion has been restored. If urine is passed freely before the prescribed volume has been given a change is made to daily maintenance requirements.

The type of fluid to be given depends upon the cause of the dehydration. In general, half-strength Darrow's solution is

Fig. 12. A method of collecting urine in male infants. A tube is connected to this apparatus and led to a measuring bottle.

safe and adequate. In cases of oesophageal atresia and omphalocele, where the losses are mainly insensible, no electrolytes need be given—we usually administer only 5% dextrose in water. In pyloric stenosis, where large quantities of sodium chloride are lost, half-normal saline should be used, but potassium may have to be added. When dehydration due to acute loss of water and sodium chloride is severe, there is a great risk of acidosis and the surgeon should be ready to give a rapid infusion of saline.[63] Plasma may be given as part of the replacement fluid (10 ml. per lb.), particularly if a strangulating obstruction is suspected. All fluids are given intravenously—usually into a scalp vein (Fig. 13). Fluids should obviously not be given by mouth, and subcutaneous infusions should be avoided at all costs.

(*g*) *Blood Transfusion*

Pre-operative blood transfusion is rarely necessary, but may be required to restore blood volume in intestinal obstructions. If there is anaemia it should be corrected but the transfusion should not exceed 10 ml. per lb.[62] (This is a safe limit, which will be of appreciable value to an average patient without involving the danger of overloading him. When the haemoglobin concentration is low this amount will raise it by approximately 1 g.%.) Furthermore, blood will almost always be required, and may be life-saving, during the operation. Therefore all newborn infants without exception should have a needle in place before the start of any surgical procedure.[47]

In many centres a 'cut-down' on an ankle vein is preferred,[30] but we have managed very well with scalp and arm vein 'push-ins'. Indeed, we take a pride in the fact that cut-downs, with their attendant risks of phlebitis and infection, are hardly ever necessary in our unit.

It must be remembered that the insertion of a needle or cannula into a vein of a small infant is difficult and requires much experience. Occasionally it takes more time than the operation itself. It is therefore important to curb the temptation to proceed with the operation without a secure, tested needle, or cannula, in a vein.

(*h*) *Antibiotics*

In these days of 'hospital staphylococci' the routine prophylactic use of antibiotics in adults and in children is naturally frowned upon. In neonates, however, who have an immature immunological mechanism and who lack antibodies, the situation is somewhat different.[39] Lengthy surgical procedures carry a grave risk of pulmonary complications which, if aggravated by secondary infection, are often fatal. In certain intestinal obstructions, peritoneal contamination is almost inevitable and may tip the scale against survival. It is, therefore, a wise precaution to use a broad-spectrum antibiotic such as chloromycetin and to commence therapy as soon as possible to provide adequate blood levels at the time of operation.

(*i*) *Vitamins*

Vitamin K in small dosage (not more than 2·5 mg.) is indicated to prevent hypoprothrombinaemia with its attendant risk of bleeding at the time of operation and during the post-operative period. It is unnecessary to give larger doses, which may indeed be dangerous, because of the risk of kernicterus.

Other vitamins (B and C in particular) may be added to the intravenous fluids (see under 'post-operative care').

(*j*) *Transportation to the Operating Theatre*

It is essential that there should be no slackening in the

Fig. 13. Intravenous fluids are almost invariably given into a scalp vein. A special needle is used and secured in place with cotton-wool impregnated with nobecutane or collodion and with strapping.

intensive care and constant observation of the infant during his transportation from the ward to the operating theatre.[19] To avoid chilling he should be moved in the incubator and he must be accompanied by the registrar in charge, who should ensure that there is no interference with the intravenous drip and who can attend to any emergency en route.

(To be continued)

ELEKTROKARDIOGRAFIESE STUDIES IX

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Twee Gevalle van Kollaps

Dit gebeur soms dat die klinikus te doen kry met 'n noodtoestand van akute kollaps as gevolg van 'n ernstige kardiale aritmie, met of sonder hartstilstand, wat volg op skok, miokardiale infarksie, narkose, ens.

Hoewel daar geen tasbare polsslag of hoorbare hartklanke mag wees nie, kan dit tog gebeur dat daar wel nog hartkontraksies teenwoordig is. Dit is veral by hierdie gevalle waar die elektrokardiogram, indien omstandighede dit toelaat, van waarde mag wees vir diagnose en behandeling.

By 2 pasiënte met 'n akute kardiale ineenstorting kon elektrokardiografiese waarneming gemaak word, en klem word veral gelê op die vinnige veranderinge van ritme wat gedurende die toestand plaasvind.

Geval 1

'n Blanke man, 48 jaar oud, is elders behandel vir chroniese brongitis en emfiseem met cor pulmonale. Onder andere is 60 mg. digitalis folia 2 keer per dag (as instandhoudingsdosis) toegedien.

Die middag van toelating het die pasiënt skielik bewusteloos geword en om 9 nm. is hy in 'n komateuse toestand na die ongevalleafdeling gebring. Die pasiënt was duidelik sianoties en klinies kon geen polse gevoel of bloeddruk bepaal word nie. As gevolg van die duidelike nat longklanke was die hartklanke ook nie goed hoorbaar nie.

Die elektrokardiogram wat kort na toelating geneem is, het die teenwoordigheid van 'n groot aantal politopiese ventrikulêre ekstrasistolieë getoon wat veral duidelik te sien was in V_3 (Afb. 1a). Vyf minute later het die elektrokardiogram atriële fladder getoon (Afb. 1b), wat weer 5 minute later vervang is deur politopiese ventrikulêre ekstrasistolieë (Afb. 1c). Die ritme het toe vanself teruggekeer na reëlmatige sinus ritme (Afb. 1d) wat daarna weer oorgegaan het na paroksismale ventrikulêre tagikardie en politopiese ventrikulêre ritme (Afb. 1e).

Binne-aarse kinidien is toegedien en 4 minute daarna het die elektrokardiogram ventrikulêre fibrillasie getoon (Afb. 1f). Die binne-aarse kinidien is herhaal en daar het weer enkele ventrikulêre kontraksies plaasgevind, (Afb. 1g) met, na 5 minute, die ontwikkeling van 'n reëlmatige nodale ritme (Afb. 1h).

Sonder enige verdere spesifieke behandeling het die ritme teruggekeer na sinus ritme wat gehandhaaf kon word (Afb. 1i). Daar was geen elektrokardiografiese of ander bewys van miokardiale infarksie nie. Die oorsaak van sy akute toestand is toegeskryf aan ventrikulêre aritmie wat gevolg het op die anoksie en moontlike oor-digitalisering.

Terwyl sinus ritme teenwoordig was, kon die groot skerp P golwe, sg. P-pulmonale, wat op pulmonale hipertensie dui, gesien word.

Geval 2

'n Blanke man, 58 jaar oud, het narkose ontvang ten einde 'n translumbale aortogram te ondergaan. Gedurende die narkose het die bloeddruk skielik gedaal en kort daarna kon selfs die karotispolse nie meer gevoel word nie. Daar was ook geen hartklanke hoorbaar nie.

Harde perkussie is op die borskas uitgevoer en adrenalien is intrakardiaal toegedien.

Omdat daar geen kliniese verbetering was nie is daar onmiddellik besluit op 'n hartmassering. Met die torakotomie is gevind dat die hart wel klop, maar dat veelvuldige ekstrasistolieë teenwoordig was.

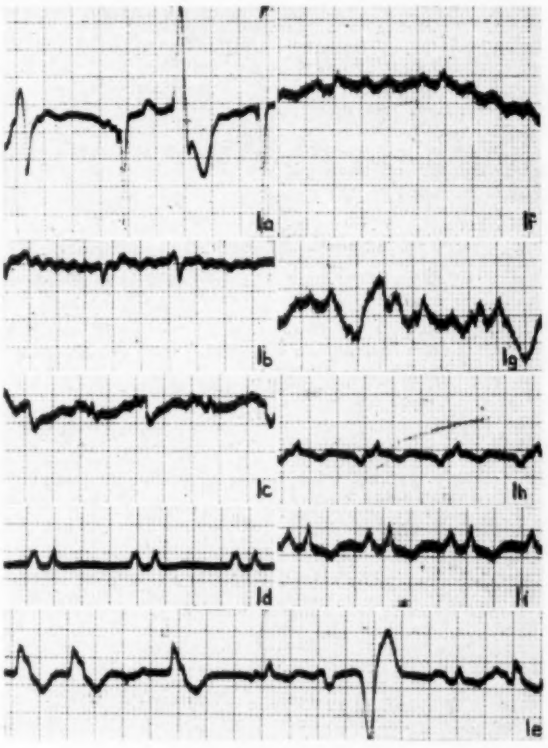
Elektrokardiografiese waarneming kon nou eers gemaak word. Weens die dringende omstandighede en die aanwesigheid van die röntgenologiese toerusting is daar heelwat wisselstroom-inmenging in die eerste paar grafieke.

Die eerste grafiek het veelvuldige ventrikulêre ekstrasistolieë getoon (Afb. 2a) wat oorgegaan het na paroksismale ventrikulêre tagikardie (Afb. 2b). Binne-aarse kinidien was toegedien en die elektrokardiogram het weer sinus ritme met veelvuldige ekstrasistolieë getoon (Afb. 2c) en later het daar ook verbreding van die QRS ingetree, moontlik as gevolg van die kinidien (Afb. 2d).

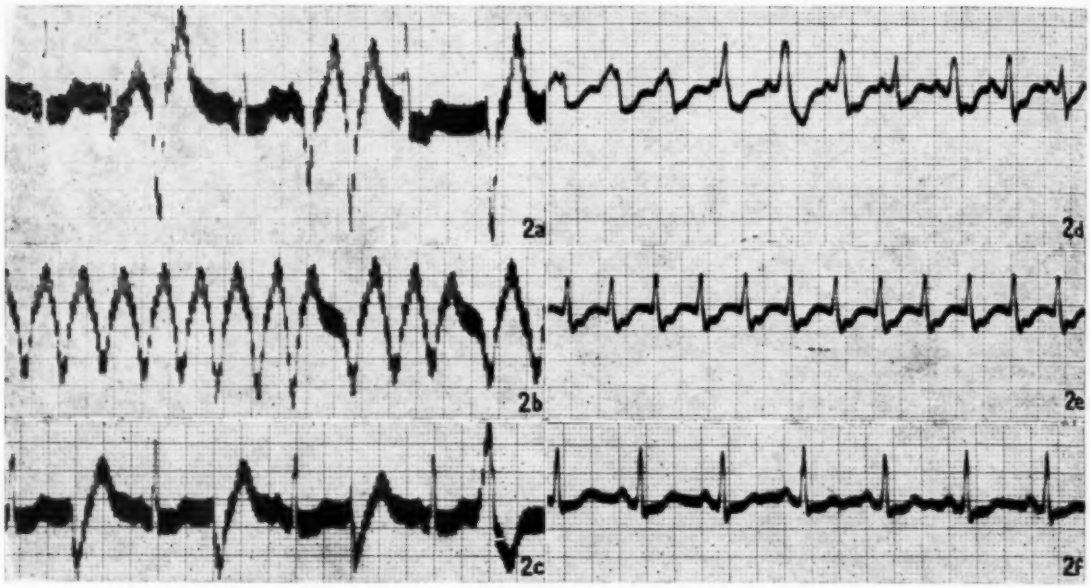
BESPREKING

By toestande van akute skok en kort voor die dood intree, word dikwels aritmieë, en veral ventrikulêre aritmieë, gevind. Die elektrokardiogram toon dan veral paroksismale ventrikulêre tagikardie, veelvuldige politopiese ventrikulêre ekstrasistolieë, en ventrikulêre fibrillasie.

Elektrokardiografiese uitwykings kan tot 30 minute na kliniese dood nog gevind word.[1] Progressiewe verwyding van die QRS mag plaasvind en soms eindig die toestand met 'n beeld van regter-bondeltakblok met verhoging van die



Afb. 1



Afb. 2 Binne-aarse prokaïen-amied is gevolg deur 'n supraventrikulêre tagikardie van 200 per minuut (Afb. 2e). Die kliniese toestand van die pasiënt asook die elektrokardiogram het geleidelik verbeter. Elektrokardiogram later het 'n sinus tagikardie van 120 per minuut en afwaartse ST-segmente (waarskynlik te wyte aan isgemie) getoon (Afb. 2f).

T-uitwyking en ST-segment en duidelike verkorting van die relatiewe QT-tyd. Die verhoging van die T en ST stem ooreen met die staking van kontraksies in die apeks van die linker-ventrikel wat direk waargeneem is by dier-eksperimente.[1]

Wanneer kinidien gebruik word, kan dit die elektrokardiografiese beeld ook beïnvloed en die interpretasie daarvan verder bemoeilik.[2] Dit veroorsaak P-golf veranderinge en verlenging van die PR-tyd, asook 'n duidelike QRS-verlenging. 'n Beeld van bondeltakblok kan veroorsaak word. T-uitwykings toon progressiewe verplatting en verbreding van sy apeks met induiking en selfs negatiewe uitwykings.

VERWYSINGS

1. Lepeschkin, E. (1951): *Modern Electrocardiography*. Baltimore: Williams & Wilkins.
2. Wood, P. (1957): *Diseases of Heart and Circulation*. Londen: Eyre & Spottiswood.

NATIONAL CANCER ASSOCIATION OF SOUTH AFRICA : PRESIDENT'S ADDRESS *

LEWIS S. ROBERTSON, M.B., CH.B., D.P.H.

It is my privilege to report on another year during which the National Cancer Association of South Africa has made considerable progress.

During the year 1959 the Association pursued its three-pronged attack against cancer by means of research, professional information, and public education, along the lines previously laid down and approved by the Board of Trustees. Important strides forward have also been made in regard to welfare work as far as cancer patients are concerned. By exploiting the unique advantages of having at its disposal up-to-date medical procedures, medical schools, and modern hospitals, the Cancer Association has made an important contribution in cancer research. Surveys of the cancer incidence in the Bantu population have continued in an endeavour to discover significant points of difference between the types of cancer found in the various races. At the same time the Association also continued, with all the means at its disposal, to make its contribution towards ensuring optimum life-saving efforts in the light of existing knowledge. It pursued its proved policy, that an alert medical profession can give maximum assistance to an enlightened public — with sufficient knowledge to combat fear and ignorance. I am pleased to say that the Council of Management has been encouraged by the keenness of the medical profession to avail itself of all possible sources of knowledge with a view to constantly improving diagnostic and therapeutic techniques, and by a public which is showing a remarkably mature and sensible attitude to the subject of cancer education. It is clear that in the fight against cancer it is necessary for the best doctor-patient relationship to be developed and maintained. The doctor must realize that the public is anxious to cooperate with him by consulting him in the earliest possible stages of the disease. It is inevitable that patients will consult their doctors in all sincerity about symptoms which may turn out to be harmless. Such people should be sympathetically received and reassured. On the other hand, patients should appreciate that the medical profession is grappling with one of the greatest problems which ever confronted mankind. Mutual confidence, sympathy, and understanding are essential elements for the ideal doctor-patient relationship.

With reference to the annual report of the National Cancer Association of South Africa, attention is invited to a few salient features:

Firstly, I should like, on behalf of the Council of Management, to say that the diagnostic and treatment facilities available in South Africa are of a high standard. An example of

* Delivered at the Annual General Meeting of the National Cancer Association on 26 July 1960.

what the Association regards as a service capable of fruitful expansion is *exfoliative cytology*. While there are many pathologists fully trained and experienced in this important diagnostic technique, the Association discovered there were not enough skilled technicians available to assist them, particularly if the Association were to inform the public of the obvious advantages of this method of early diagnosis. I am pleased to report that the Association has successfully instituted a full-time course for the training of cyto-technicians. Once these technicians are proficient they will return to their respective laboratories in various parts of the country where they will be able in turn to train colleagues. The medical profession will, through the medium of the *South African Cancer Bulletin*, receive detailed information in regard to taking of specimens in their consulting rooms and the correct method for forwarding these to pathologists for expert analysis. Doctors are urgently requested to equip themselves with this important knowledge, because the Association intends during 1961 to embark on one of its most intensive public education programmes as a result of which women in particular may be expected to insist upon this method of diagnosis during routine medical examinations. At the same time an appeal will be made to women's organizations, when the time comes, to cooperate with the Association in bringing its films and literature to the women of South Africa. An excellent educational film which is available is in the process of being translated into Afrikaans.

Secondly, it is necessary to draw attention to the establishment by the Association of an expert *'Tumour Reference Panel'* to which any doubtful, difficult, or interesting tumour sections can be referred free of charge.

Thirdly, the medical profession is reminded that the Association's up-to-date professional *film library* is at their disposal free of charge. Certain medical schools have realized the value of these films as teaching aids. It is a matter for concern, however, that one or two medical schools have not availed themselves of this free service. More use could be made of the Association's medical library in Johannesburg. Attention is also invited to the fact that the Association's Clinical Programme Committee organizes lectures and symposia on cancer whereby doctors may benefit considerably from discussions on various aspects of the disease.

In referring to the *public education activities* of the Association, I wish to make special mention of the magnificent support received from all sections of the South African press and radio. The numerous articles which continue to appear in the press, and radio broadcasts, serve as invaluable means of spreading knowledge about cancer. The press and radio are to be congratulated on the high standards achieved in their propaganda. The Cancer Association endeavours not only to interest others in its educational work but also to obtain their cooperation. Women's and church groups, trained nurses, training colleges, municipal authorities, organizers of shows and exhibitions throughout the country, have rendered valuable assistance in the past. The latest addition to this army of volunteers is organized commerce and industry. By way of experiment, the Association appealed to employers to arrange film shows for their employees and to distribute educational literature in pay envelopes and by other available means. So overwhelming was the response that the Employee Education Service has become an important feature of the Association's programme. It is a feature of film shows arranged in this manner that attendances are invariably higher than anticipated by employers.

During 1959 15 country tours were attended by 12,830 persons, more than 3 times the number of people who attended the previous year. At agricultural and industrial shows direct personal contact was made with 214,910 adults and over 700,000 pamphlets have already been distributed.

Details in connection with progress made in the fight against the *cancer 'quack'* appear in the annual report. A great deal has been said and written about this problem, but it is, I consider, necessary to mention why the Association fights cancer quackery. This would appear to be desirable in view of the fact that it is contended by quacks that the Association 'protects the medical profession'. This is not in accordance with facts. The Cancer Association was not formed to serve the interests of the medical profession but to look after the welfare of the public and the cancer patient, although it assists the medical profession and medical auxiliaries by providing information on diagnostic and treatment facilities. The fact that the Association's immediate aim is to ensure early recognition and therefore early treatment and cure, and that its long-term aim through research is to combat the disease more effectively, disproves this unworthy accusation! The real reason why the Association fights quackery is because it wishes to protect a gullible public from exploitation. There can be few things more pathetic than for a medical practitioner to deal with a hopeless case of cancer after a quack has vainly applied his plasters and secret remedies. Particularly, when it is considered that most victims of quacks initially suffer only from skin cancer, the most curable form of cancer, it is heartbreaking to discover such patients only after these cancers have been allowed to spread to other parts of the body and to become incurable. The Association would be negligent if it did not take steps to warn the public about the danger of consulting cancer quacks. The Association will persist in enlightening the public in this regard through all available means and whenever opportunity presents itself.

As regards *research*, demographic surveys continue to confirm the marked contrast in incidence and site of cancers in the different races of Southern Africa. In Cape Town the high incidence of stomach cancer in the Coloured population has been a striking feature, while the surveys in the Transkei and Moçambique have shown an inverse incidence of cancer of the oesophagus and liver. In the Transkei, cancer of the oesophagus shows an incidence which, in some areas, is higher than any yet reported elsewhere in the world. Liver cancer, on the other hand, is seldom seen in the Transkei. The exact opposite situation exists in Moçambique where liver cancer is the most common malignant tumour seen at autopsy in the Bantu in Lourenço Marques, while cancer of the oesophagus is very rare. The Transkei observations indicate that the incidence of oesophageal cancers is not dependant upon genetic factors.

From these findings it would appear that there are important environmental factors determining the racial incidence of different cancers. Observations on the Bantu in different parts of South Africa suggest that the environmental factors vary according to tribal customs and that these may be operative in determining the incidence of different cancers. It is, therefore, important, having established the factual data by demographic surveys, to make every effort to define the environmental factors which are of importance in the causation of cancer. If this could be successfully accomplished it is believed that approximately two-thirds of cancer cases could be prevented.

Finally, so far as the Association's programme of activities is concerned, members will no doubt be pleased to learn that the Council of Management has finalized a plan of action whereby needy cancer patients can obtain such assistance as can be rendered by the Association, and that this assistance will be placed within reach of all.

Any welfare organization encountering a cancer patient in need may apply to the Association for assistance on behalf of such patient, provided a report by a welfare worker in the prescribed form and accompanied by the requisite medical certificate, is submitted. A handbook for the guidance of interested parties is available free of charge to *bona fide* welfare organizations upon application to the National Secretary, P.O. Box 2000, Johannesburg. Applicants should state whether the handbook is required in English or Afrikaans. It would be appreciated if the press would draw attention to this matter. This new approach is a great improvement, since humanitarian services rendered to date could only be made available in certain areas as described under the section 'Care of the cancer patient' in the 1959 Annual Report.

I should like, in conclusion, to express my personal and sincere appreciation to my colleagues on the Council of Management and those serving on committees thereof for their support and cooperation during the past year, and to record the Association's thanks to the Secretary and staff for their loyal and efficient service in spite of the ever-increasing burden placed upon their shoulders with the great expansion of the Association's activities.

SOUTH AFRICAN JOURNAL OF LABORATORY AND CLINICAL MEDICINE

The next issue of the *South African Journal of Laboratory and Clinical Medicine*, published quarterly by the Medical Association of South Africa, will appear at the end of September 1960, price 7s. 6d. (annual subscription £1 5s. 0d.)

Contents

1. *Prediabetes: A Survey* by Dr. W. P. U. Jackson of the University of Cape Town.

This article is divided into a number of sections. The first, 'delineation', discusses what prediabetes is in mothers, fathers, families, and obese patients, as well as the condition called 'temporary diabetes'. Its effect on the foetus, and its implications, especially in pregnancy, are discussed in the next two sections, and the fourth section deals with methods of diagnosing 'a state which is not normality nor yet a disease'. The final sections deal with prophylaxis and what we still want to know about prediabetes.

2. *Vascular Fistulae* by Prof. A. J. Brink of the University of Stellenbosch.

Professor Brink discusses vascular fistulae in general and presents several case-reports of arteriovenous fistulae involving the pulmonary, renal, and peripheral vascular systems. He gives the diagnostic features of the different types of fistulae and discusses the special procedures which are of help in the differential diagnosis.

3. *Induced Ventricular Fibrillation (an experimental study with special reference to the use of this technique for the prevention of systemic air embolism)* by Drs. M. B. McKenzie and C. N. Barnard of the University of Cape Town.

In this paper the problem of systemic air embolism during open surgery on the left side of the heart, and the methods which have been recommended for its prevention, are discussed. The use of induced ventricular fibrillation during experimental open-heart surgery and its value in preventing systemic air embolism is reported. The authors conclude that the induction of ventricular fibrillation during extracorporeal circulation is a safe procedure and that its use will prevent systemic air embolism.

4. *Research Aspects of Tuberculosis in South Africa* by Dr. B. F. Sampson of King George V Hospital, Durban.

This paper deals with various aspects of research into the problem of tuberculosis, including the sensitivity or resistance of various strains of tubercle bacilli to INH, the question of atypical strains, and the difficulty of distinguishing acid-fast saprophytes when examining the sputum of a suspected case of tuberculosis, and the possible importance of these saprophytes. The bromide test for tuberculous meningitis is also discussed.

Readers of the *Journal* who are not yet subscribers to the *South African Journal of Laboratory and Clinical Medicine* and who would like to take out subscriptions or to obtain a copy of the September issue should write to: The Business Manager, Medical Association of South Africa, P.O. Box 643, Cape Town, before the end of September 1960.

PASSING EVENTS : IN DIE VERBYGAAN

South African Institute for Medical Research, Johannesburg, Staff Scientific Meeting. The next meeting will be held on Monday 22 August at 5.10 p.m. in the Institute Lecture Theatre. Mr. G. C. Beveridge, of the Pneumoconiosis Research Unit, will speak on 'Fluorescence microscopy'.

* * *

University of Cape Town and Association of Surgeons of South Africa (M.A.S.A.), Joint Lectures. The next lecture in this series will be held on Wednesday 17 August at 5.30 p.m. in the E-floor Lecture Theatre, Groote Schuur Hospital, Observatory, Cape. Mr. A. J. Walt will speak on 'Intestinal polyps in children and adults'. All members of the Medical Association are welcome to attend this lecture.

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Eastern Transvaal Branch, (M.A.S.A.) Spitz Golf Trophy. A very successful day was enjoyed by members of the Eastern Transvaal Branch of the Medical Association at the Winkelhaak Golf Club on Sunday 5 June 1960.

The prize-winners of the 4-Ball Better Ball Point Stableford Competition were as follows: 1st Rossouw and Karstaedt 40, 2nd Rossiter and Skea 39, 3rd Stoch and Grusin 39, 10th Swarts and Bosch 29. Most golf: Fischer and Dekker 22; two club: F. Mynhardt and H. Grusin.

The Branch extends its thanks to the following firms for donating the prizes presented: Burroughs Wellcome & Co. (S.A.) Ltd.; Merck, Sharpe & Dohme International; A. Lipworth Ltd.; South African Druggists Ltd.; Parke, Davis Laboratories Ltd.; Protea Pharmaceuticals (Pty.) Ltd.; Maybaker (S.A.) (Pty.) Ltd.; Berlimed; and Winthrop Products. Dr. M. Spitz donated the Spitz Trophy.

The Branch hopes to make this an annual competition with a view to getting the town members better acquainted with the 'platteland' of the Eastern Transvaal Branch.

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Santam-Sanlam Siektefonds. Die aandag van lede van die Mediese Vereniging word bepaal by die advertensie van die Santam-Sanlam Siektefonds wat in die uitgawe van die *Tydskrif* van 6 Augustus verskyn het.

Om onnodige latere navrae en korrespondensie te vermy, word lede aangeraai om te sorg dat alle rekenings vir behandeling van lede van die Fonds tot op 30 Junie 1960 vóór die sluitingsdatum (30 September) by die Fonds ingelewer word.

* * *

Dr. A. Shedrow, Chairman of the South African Council for Exchange of Medical Sciences, has recently returned to Johannesburg from a visit to Paris and London. Dr. Shedrow has arranged for a special number of *Medicine in South Africa* to appear later this year as a supplement to *Semaine des hôpitaux de Paris* and has also made arrangements with various French organizations to keep his Council informed about medical research in France. While in London Dr. Shedrow visited the Department of Gastroenterology of the Central Middlesex Hospital, where he established contact between the Unit's Director, Dr. F. Avery Jones, and the South African Council for Exchange of Medical Sciences.

NEW PREPARATIONS AND APPLIANCES : NUWE PREPARATE EN TOESTELLE

HUMATIN KAPSEALS

Parke, Davis Laboratories (Pty.) Ltd. introduce Humatin sulphate, a new antibiotic agent, unique among known antibiotics in that it has high anti-amoebic and antibacterial activity coupled with low oral toxicity.

Description. Humatin (paromomycin, Parke-Davis) is a white, amorphous, stable, water-soluble antibiotic obtained from aerated culture filtrates of *Streptomyces rimosus forma paromomycinus.*

Indications. Humatin is highly effective for treating bacterial and amoebic infections of the intestinal tract. Humatin is indicated in the treatment of patients with dysentery caused by *Shigella, Salmonella,* and *Escherichia coli,* as well as in the management of intestinal infections due to unidentified pathogens. Humatin has also proved effective in the treatment of acute, subacute, and chronic cases of intestinal amoebiasis. Other indications for Humatin are pre-surgical suppression of intestinal flora and as an aid in the management of hepatic coma.

Dosage and administration. Amoebiasis: For adults 4-6 Kapseals, orally, daily in divided doses for 5 days, have proved effective. For children 12·5 mg. per lb. body-weight daily for 5 days is applicable. Larger doses may be required in particularly obstinate cases.

Bacterial gastro-intestinal infections: In the treatment of patients with salmonella infections and diarrhoea due to unidentified pathogens, a dose of 25 mg. per lb. body-weight daily is recommended in divided doses for up to 7 days. Shigella dysentery and *Escherichia coli* gastro-enteritis can be expected to respond to half this dose. Doses up to 50 mg. per lb. have proved necessary when the infection has been particularly severe or the organisms less sensitive. Treatment may be repeated if necessary.

Pre-surgical suppression of intestinal flora: Prior to bowel surgery, a dose of 500 mg. of Humatin 4 times daily for 4 days is suggested.

Management of hepatic coma: Doses of up to 6 g. daily have produced good results.

Side-effects. During clinical investigation, normal individuals have experienced constipation initially, but they have usually developed loose stools when doses in excess of 2 g. daily were given for a period of more than 3 days. On higher doses, 4-10 g. daily, some individuals have developed moderately severe diarrhoea which is relieved by withdrawing the drug. Abdominal cramps, pruritis ani, and heartburn have been reported. The use of this antibiotic, as with other antibiotics, may result in an overgrowth of non-susceptible organisms, particularly upon prolonged usage. Enteritis due to staphylococcal superinfection has not been reported with Humatin.

Packing. Kapseals each containing Humatin sulphate equivalent to 250 mg. Humatin base in bottles of 16.

Further information may be obtained from Parke, Davis Laboratories (Pty.) Ltd., P.O. Box 24, Isando, Transvaal.

LENIC HIGH POTENCY

Westdene Products (Pty.) Ltd. announce the introduction of a new high-potency formulation of Lenic capsules, manufactured by Chemway Internationai of America, and supply the following information:

Lenic is an unsaturated fatty-acid complex for hypercholesterolaemia. In the new high potency capsules the content of the higher unsaturates — tetra-penta and hexaenoic — have been trebled. This development is in keeping with the latest trends in this field since workers such as Kinsell *et al.*,[1] have shown that arachidonic, pentaenoic, and hexaenoic acids taken together are 5-8 times as potent gram for gram as linoleic acid in lowering blood-cholesterol levels.

According to Worne *et al.*[2] Lenic capsules, together with a moderate fat diet, will lower elevated blood-cholesterol levels in 80% of patients. They also reported subjective improvement in intermittent claudication, in vascular stasis, in those with peripheral vascular diseases, and in anginal spasms in coronary insufficiency.

Despite the increase in the content of the higher unsaturated fatty acids, the price of Lenic H.P. capsules remains the same. The calorie content of each capsule also remains at 9. The dosage now suggested for Lenic H.P. is 2 capsules 3 times a day, after meals, for 10-12 weeks. The new capsules are coloured lime green to distinguish them from the previous deep red capsules.

Further information may be obtained from the sole South African distributors, Westdene Products (Pty.) Ltd., P.O. Box 7710, Johannesburg.

1. Kinsell, L. W. *et al.* (1958): Lancet, **1**, 334.
2. Worne, H. E. *et al.* (1959): Amer. J. Med. Sci., **238**, 45.

THE ROYAL SOCIETY OF MEDICINE

The following awards have recently been made by the Council of the Society:

Hughlings Jackson Lecturer and Medallist: Sir Russell Brain. Lecture to be delivered in February 1961. The Hughlings Jackson Lecture is given triennially by a well-known physiologist or neurologist.

Sherrington Memorial Lecturer and Medallist: Dr. D. E. Denny-Brown. Lecture to be delivered in 1962. The Sherrington Memorial Lecture is delivered quinquennially and is devoted to the advancement of the sciences of neurology and physiology.

Blair Bell Medallist 1960: Professor F. J. Browne. The Blair Bell Medal is awarded quinquennially for the advancement of science in gynaecology and/or obstetrics in the preceding 5 years.

Nichols Fellowship 1960-61: Dr. Fred Benjamin, of the University of Cape Town, for his work on 'Glucose tolerance in dysfunctional bleeding at the time of the climacteric and in carcinoma of the endometrium'. The Nichols Fellowship is awarded triennially for researches to advance knowledge in obstetrics and gynaecology.

William Gibson Research Scholarship for Medical Women, 1960-62: Dr. Jean Ginsburg, Research Fellow St. Thomas's Hospital Medical School, for her circulatory and metabolic studies. The William Gibson Research Scholarship for Medical Women is for 2 years with a possible renewal for a third year and is awarded to a qualified medical woman.

BOOK REVIEWS : BOEKBESPREKINGS

FOREIGN ORGANIC COMPOUNDS IN THE BODY

Detoxication Mechanisms. 2nd edition, revised and enlarged. By R. T. Williams, Ph.D. (Wales), D.Sc. (Birmingham). Pp. x + 796. £6 6s. 0d. net. London: Chapman & Hall Ltd. 1959.

The interval between the first edition of this book, produced in 1945, and the present edition has been characterized by a very rapid and remarkable increase in our knowledge of the fate of foreign organic compounds in the animal body. The book has therefore been completely rewritten and is 2½ times its former size. The chemicals considered include drugs, insecticides and other pesticides, colouring agents, artificial flavouring agents and anti-oxidants used in foods, industrial solvents, dry-cleaning agents, and other compounds. The metabolism and detoxication of these substances have been studied with a view to explaining toxicity and drug action, the prevention of toxic action, and the enzymic mechanisms involved. The application of the knowledge has been effective in the fields of industrial toxicology and therapeutics. There is full reference to the literature, numerous formulae and tables, and author and subject index. This volume, dealing with the biochemistry of foreign organic compounds, is 'no mere directory but a systematic exposition of a fascinating subject'. N.S.

CORRESPONDENCE : BRIEWERUBRIEK

CONFERENCE ON EPIDEMIOLOGY OF ARTHROPOD-BORNE DISEASES

The Acting Secretary for Health of the Union of South Africa has kindly forwarded to the Association a copy of a minute which he received from the Acting Secretary for External Affairs. This minute is reproduced below:

'At the last meeting of the East African Medical Research Scientific Advisory Committee it was decided that the next Scientific Conference should be on the Epidemiology of Arthropod-borne Diseases and that it should be held in Nairobi over the period 11th to 13th January, 1961.

'Anyone interested is invited to attend and to take part in the proceedings. It is hoped that a number of papers will be contributed, the titles of which should be submitted by October 15th and a 500-word abstract by the end of November. Papers should preferably take about 20 minutes to deliver.

'Conference sessions will be held in the mornings and afternoons in the Conference Hall of the High Commission Headquarters Building.

'Any enquiries as to the arrangements should be sent to the Medical Research Secretary, Office of the East African Council for Medical Research, Box 30005, Nairobi.

Department of External Affairs
Pretoria
18 May 1960.'

THE PERSONAL DOCTOR

To the Editor: I should like to ask my old friend and colleague, Prof. J. F. Brock, how much his definition[1] of a personal doctor differs from that which I was rash enough, three years ago, to suggest for a general practitioner: 'A doctor in direct touch with patients, who accepts continuing responsibility for providing or arranging their general medical care, which includes the prevention and treatment of any illness or injury affecting the mind or any part of the body.'[2] Analysis of significant differences between the two definitions should help this discussion.

In Great Britain the doctor we now recognize as a good general practitioner is part of a comprehensive medical service, in which he plays an important rôle — bringing the resources of modern medicine to the homes and bedsides of his patients; supporting, comforting, and befriending them and their families in the same personal way as he has done in the past; and advising and guiding them wisely when they need specialist help.

That general practice is evolving like this, fitting into the modern framework of medicine, is natural. It is a challenge to us all to improve this branch of our profession in the ways which Dr. Fox suggests, but *not* a reason for changing its name.

The American Academy of General Practice, our own College of General Practitioners, the College of General Practice of Canada, the Australian College of General Practitioners, and similar organizations in the Netherlands, Germany, and elsewhere are all firmly established and working hard for this important branch of medicine. These Colleges are all based on the concept of a 'general practitioner' and are proud of it. Is this really the time to embark on a new international nomenclature and change his name to 'personal doctor'?

There is an important difference, not always appreciated, between what we know as 'general' practice and the purely hypothetical 'comprehensive' practice of the whole of medicine by one man. Even in the time of Hippocrates good family doctors did not try to do everything — 'I will not use the knife, not even on sufferers from stone, but will withdraw in favour of such men as are engaged in this work'. Nowadays, there are hundreds of modern techniques for diagnosis and treatment which are beyond the scope of any single practitioner, wherever he may work. But the fact that he cannot do complicated biochemical or pathological investigations, cardiac catheterization, renal biopsy, major surgery, or radiotherapy does not lessen in any way the need for his training and outlook to be *general*, so that he may provide or arrange the correct care for all his patients whatever may be wrong with them.

If his professional interests are broad, and he is versatile and widely informed, the term general practitioner is not out of place; if not, he will be of little use as a medical adviser at all. The reputation of quacks depends on confidence established in personalities who have little general medical knowledge. The terms 'general practice' and 'general practitioners' still seem good to many of us, especially as they have been identified for so long with family practice and family doctors.

Our worth has been recognized for thousands of years as being largely in personal doctoring. Dr. Fox outlines skilfully the better conditions which most of us think we need to help us do this job better, and points out how very important personal care still is today. We must all agree with much that he says; but to change our title at this stage from GPs to PDs would, I think, lead to confusion and be a mistake.

J. H. Hunt

54 Sloane Street
London, S.W.1
29 July 1960

1. Correspondence (1960): S. Afr. Med. J., **34**, 640 (23 July).
2. Hunt, J. H. (1957): Brit. Med. J., **1**, 1075.

THE LAW IN RELATION TO INITIALS INDICATING DEGREES

To the Editor: From a perusal of medical journals it would appear that all medical practitioners are not aware of the law governing the use of initials indicating qualifications.

Section 33(3) of the Medical, Dental and Pharmacy Act, 1928 lays down that 'No registered person shall take, use or publish in any way whatsoever any name, title, description or symbol indicating, or calculated to lead persons to infer, that he possesses any professional qualification which is not shown in the register in connection with his name'. As the South African Medical Register indicates the place of origin after all degrees or diplomas, it follows that this should also be included.

Apparently the same ruling obtains in Great Britain where, according to the *Handbook for Recently Qualified Medical Practitioners*, published by the British Medical Association in April 1926, the following appears: 'It is the duty of the practitioner to see that initials indicating his degrees or diplomas, and abbreviations indicating the place of origin of such degrees or diplomas, are used correctly in the Medical Directory and other publications, and a practitioner must be held responsible for repeated misdescription'.

R. Lance Impey

'Finchcroft'
Talana Road
Claremont, Cape
23 July 1960

SPECIAL GESTURE TO PROF. E. C. CRICHTON

To the Editor: Some time ago it was announced in the *Journal*[1] that a small committee of 4 (Dr. G. Sharp, Mr. J. S. Marr, Prof. J. T. Louw and Mr. J. D. Joubert) had been asked to trace Prof. E. C. Crichton's ex-house-surgeons, and to ask them to contribute to the cost of having two portraits of Professor Crichton done by Miss Laurel Zahn (now Mrs. Goodwin), the one to be given to Professor Crichton and the other to be hung in the Medical School of the University of Cape Town.

Altogether 72 doctors, now scattered all over the world, contributed an equal share to this undertaking, and they all indicated that if there were any monies over, they would agree to this sum being paid into the Benevolent Fund of the Association.

The portraits have been paid for, and Miss Zahn must be congratulated in capturing Professor Crichton's expressions in detail.

The one portrait was presented to Professor Crichton and the other to the Medical School, at a pleasant sherry party held in Prof. J. T. Louw's lecture room.

Most of Professor Crichton's ex-house-surgeons, and several others, have had coloured copies of one of the portraits made by the *Cape Times* Ltd., for their surgeries. The copies are really most attractive and are a great credit to the photographic department of the *Cape Times*.

All expenses have now been paid, and the sum of £38 18s. 4d. is over, which is now being paid into the Benevolent Fund, as agreed by the contributors.

As Treasurer of the Association I should like to thank all the contributors to the fund for allowing us to pay the balance into this Fund, and we must thank Professor Crichton for being the popular and loved person that he is, because that is what prompted the whole venture.

J. D. Joubert

405 Medical Centre
Cape Town
26 July 1960

1. University News (1959): S. Afr. Med. J., **33**, 671.